

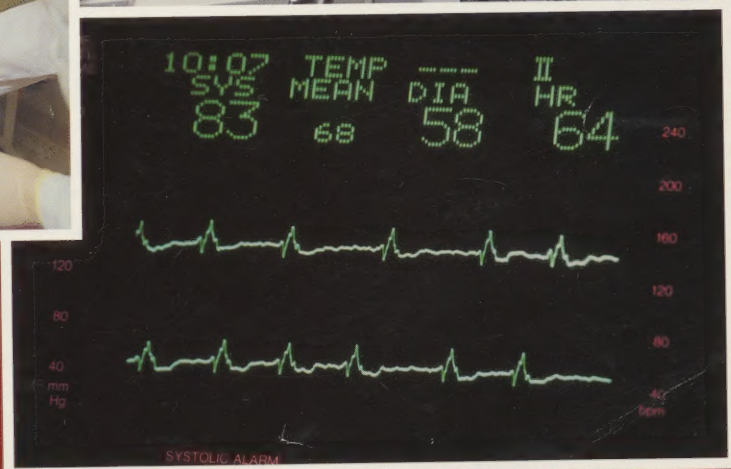
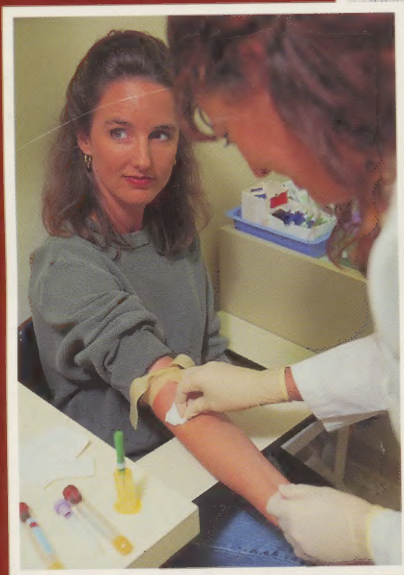
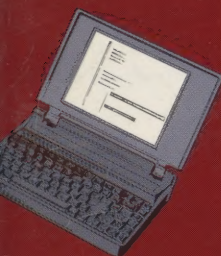
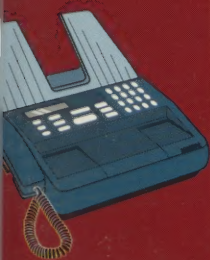
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Telemedicine

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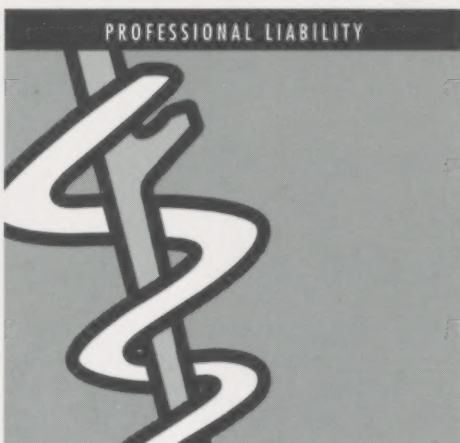
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Thoughts on... Telemedicine

Teaming with Technology— Removing Barriers, Improving Care

by Judith D. Burke, Director, Publications & Communications

Telemedicine is a hot item in the literature these days. Articles in both the lay press and medical journals abound. Patients are becoming much more informed about conditions and treatment options because of new access to technology. Physicians are often left wondering if the costs, both financial and of time, liability issues and resulting patient satisfaction will actually translate into practical uses of telemedicine in their offices.

While the primary uses of telemedicine's most far-reaching applications are taking place in rural institutions, prisons and the military, it seems safe to say that telemedicine will soon be coming to an office near you.

Background

The history of telemedicine is probably as old as the telephone and physicians making calls to rural patients. The first mention in the literature of a video image applied to a physician/patient encounter appears around 1958. The late 1960s produced demonstration projects fueled mainly by NASA's desire to understand how to address a medical emergency in space. The last decade has seen a resurgence in the interest of developing technology and the communications infrastructure necessary to support practical applications for medicine. According to a recent article in *U.S. News & World Report*, possibly 100,000 patients

benefitted from telemedicine this year. That number could grow to many millions within ten years.

Telemedicine, a broad term that encompasses everything from using the Internet to access on-line journals and databases, to using e-mail to consult with colleagues and patients, to videoconferencing and consultations, to storing massive amounts of documentation on the computer, has become easier to access in recent years. With the costs of technology dropping, computer workstations have sprouted up on physicians' and patients' desks, paving the way for expanding the uses of technology.

Wisconsin Physicians Embrace Technology

In Wisconsin, use of telemedicine is growing. From an experimental project with St. Joseph's Hospital and Ameritech in Milwaukee, to Marshfield's extensive videoconferencing and teleconsultations with the satellite clinics, Wisconsin physicians are finding that telemedicine's benefits seem to outweigh the drawbacks.

This month, the *WMJ* looks at the ways in which Wisconsin physicians are using technology in their practices. Doctor Osborn challenges her colleagues to become involved in determining the policy issues surrounding technology in health care in her *President's Page* column (page 4); our feature articles highlight

work around the state (*Focus on Telemedicine* beginning on page 21); we present the AMA's Council on Medical Services recent Report on Telemedicine to the House of Delegates (from the Interim meeting held in December) which discusses work taking place at the national level; and in the *Wisconsin Medical Journal* you'll find a paper on the Teleology program at the University of Wisconsin Hospital and Clinics (page 34). Kalisa Barratt, JD, SMS Associate General Counsel, addresses the legal aspects of telemedicine in *Applying 20th Century Law to 21st Century Law*, page 58.

At this point in the development and use of the technology, any discussion of telemedicine should leave you with more questions than answers. It is an evolving science which we hope will, as development continues, enhance the art of medicine.

World Wide Web Sites of Interest
www.wismed.com — WISMED, the SMS Web site provides up-to-date information on Society happenings, legislative issues, seminars, and links to other sites for physicians.

www.ncbi.nlm.gov/PubMed — Medline, the premier site for physicians looking for journal articles, up-to-date literature.

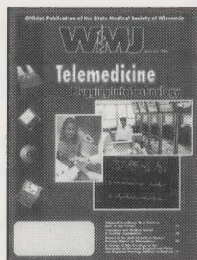
www.cpmc.columbia.edu/edu — Columbia Presbyterian Medical Center's site on Medical Informatics.

Continued on p. 15





Official Publication of the State Medical Society of Wisconsin



COVER THEME TELEMEDICINE

Technology is blending with medicine at an astounding rate. Today, physicians and patients are hooked up, logged on, and eager to utilize the power of technology to enhance care. The WMJ looks at the enormous growth of telemedicine applications and the ways in which Wisconsin physicians are tapping into the benefits of the technology.

Cover design by Eric Landmann, TypeTronics, Madison.

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The *WMJ* (ISSN 0043-6542) is the official publication of the State Medical Society of Wisconsin and is devoted to the interests of the medical profession and health care in Wisconsin. The managing editor is responsible for overseeing the production, business operation and contents of the Journal. The editorial board, chaired by the medical editor, solicits and peer reviews all scientific articles; it does not screen public health, socioeconomic or organizational articles. Although letters to the editor are reviewed by the medical editor, all signed expressions of opinion belong to the author(s) for which neither the *WMJ* nor the SMS take responsibility. The *WMJ* is indexed in Index Medicus, Hospital Literature Index and Cambridge Scientific Abstracts.

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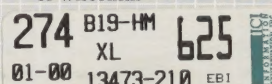
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President's Page

Physicians Can and Must Control Our Future

by Sandra L. Osborn, MD

They seem to be at opposite ends of the practice of medicine: the radiologist in a medical center who reads the CT scan of a patient in a small community hospital for a family physician, and the "hired" medical expert who might testify against the family physician in a medical liability case.

But there are some similar issues that offer concerns for both. For example, where is the expert licensed? Does the state of licensure determine his/her authority in his [designates his/her] expression of expertise? What constitutes practice in a state? How often does he need to "practice" in a state to be subject to review by that state's medical examining board?

We have had court experts for many years, and some of these questions are beginning to be answered. Telemedicine experts, in the recent designation applied primarily to evaluation and diagnosis by computer-supported technologies, are just beginning to expand in number and patient care applications.

Because telemedicine provides greater access to care, can be cost effective for the patient and revenue generating for both a primary physician and his expert, it will continue to increase in use. There are questions being asked that include concepts of licensure, liability, informed consent, privacy, security, reimbursement, and very importantly — what

constitutes a doctor-patient relationship, and who controls the patient's care? The last two concerns are crucial in providing the best care for our patients, and also in defining where the responsibility will be placed if the outcome is less than optimum and the patient sues.

The Board of Directors, at its December 1997 meeting adopted the recommendation of the Governmental Affairs Commission defining an SMS policy on the regulation of telemedicine. The commission presented a policy which it felt, and the Board concurred, "represents a reasonable regulation of medical practice that adequately protects the public and physicians, while allowing them the benefits of modern technology." The policy statement concerning regulation of the practice of medicine by way of modern technology only scratches the surface of the issues this technology brings with it, however.

Future Telemedicine Policy Taking Shape Now

Who will make the decisions and provide answers about telemedicine issues? Who will develop the policies and regulations? As physicians in the state of Wisconsin we **MUST** be involved in the process. We must try to understand the issues and discuss them carefully and thoughtfully with our colleagues. The process began for our AMA Delegates and Alternate Delegates last year;

there is much work to be done. Will we have any resolutions about telemedicine at the SMS Annual Meeting in April? Which commissions have found that telemedicine affects their deliberations? Has WISPAC found any legislators interested in the topic? Does the use of telemedicine come up at county medical society meetings, at hospital or clinic staff meetings, or with our patients? It should! The boundaries of the technology continue to get wider, with the policies and regulations trailing behind. Your participation in medical society activities will assure careful consideration of the issues and intelligent crafting of the regulations. Please take the time to become involved and lend your voice to the House of Medicine. The future is ours and ours alone. We must help define the shape of things to come. For more information on how you can participate in SMS commissions or other activities, contact **Maureen O'Brien**, VP Membership & Professional Relationships, at SMS ext. 231 or via e-mail at: MAUREENO@smswi.org.





EVP Report

1997 Paves Way for a Dynamic Future

by John E. Patchett, JD

I have been on the road for the past several months talking to you about the future for the State Medical Society and reflecting on the significant events of 1997. At times, it is almost dizzying to contemplate all of the changes we have instituted this past year, but like you in your practices, we must embrace change.

If the SMS doesn't change in response to the evolving needs of its members, the organization will not be relevant. Demonstrating relevancy has been a driving force behind the efforts undertaken in 1997; identifying what our members' needs are for their professional organization and then ensuring that we are organized to support those needs.

Since arriving in October 1996, I have made more than 70 personal visits to county medical societies, groups/clinics, hospitals, specialty societies, and related health care organizations. We also conducted the 1997 census of the membership to quantitatively identify purpose, needs, wants, and relevancy.

It was very encouraging that 75% of you, our members, believe the SMS is relevant. We need, though, 100% of Wisconsin physicians to **know** the SMS is relevant. With full participation, the SMS is a powerful voice. It enables Wisconsin physicians to be in the driver's seat determining the path of medicine.

The heart of the message that Wisconsin physicians have overwhelmingly sent us is *"advocate for us and our patients, strengthen the professionalism of medicine, and enhance the image of medicine."* With that very clear directive, I would like to share with you some of the accomplishments of 1997 and the objectives for 1998.

1997 Accomplishments and 1998 Objectives

- In 1997, we significantly expanded senior staff visits to county medical societies, groups/clinics, hospitals, specialty societies, and related health care organizations in an effort to provide timely, face-to-face information about SMS activities and demonstrate value to physicians across the state. In 1998, we will continue these visits in an effort to sustain membership and give physicians the opportunity to meet and get to know key staff.
- During the course of last year, we positioned the SMS to more effectively and efficiently utilize staff resources; developed and implemented a new staff organizational structure in order to achieve an enhanced team approach, increase accountability, place greater emphasis on state-of-the-art management information and communications

systems and target more resources to those areas identified by members as high priority while simultaneously decreasing full-time staff equivalents. The following key staff changes were made:

- The positions of Deputy Executive Vice President and SMS Holdings Chief Operating Officer were combined in order to create more synergy between the two organizations. We hired a high-level corporate executive, Dave Kemp, to fill this position. With his background and capabilities relating to finance, business and planning, Dave brings an important, new perspective to the SMS.
- The **Marketing and Communications** units were expanded with the hiring of Linda Syth, VP Marketing and Communications. 1997 saw the completed redesign of the key communications tools, the *WMJ* and *Medigram*; the enhancement of WISMED with the creation of a "Members Only" section; and the development and implementation of the first SMS marketing plan. We



also significantly expanded research activities relating to members and non-members.

In 1998, we look forward to this unit providing an increased focus on news media and public relations and continued development and implementation of the cross-unit thematic approach to SMS activities, communications, and printed materials; and expanding efforts to enhance professionalism and improve the public image of Wisconsin physicians as a whole.

- The **Public Affairs** unit was created by combining government affairs, policy and quality. The result is increased impact and more effective coordination between these activities.



In 1998, this group will develop a two-year strategic plan for legislative issues and activities and plan expansion of SMS activities at the federal level. We will expand legislative staff by hiring a Director of State Legislation, and increase the focus on state administrative and regulatory affairs.

- The **Office of General Counsel** was created and we expanded legal support and activities for members and enhanced support for directors, officers, commissions, and the House of Delegates.

This year, we will expand the staff to include an Assistant General Counsel to specialize in contracts and negotiations, and develop and implement expanded SMS member services in this increasingly critical area.

- The **Membership** department was significantly restructured to better meet the needs of existing members and provide outreach to nonmembers. We created a specific position for liaison with groups/clinics and specialty societies; and created the position of community projects coordinator to enhance the SMS image and increase participation with local public/community health activities and programs across the state.

In 1998, we will unveil an exciting new membership data system, the installation of upgraded software, and provide additional staff training.

- The **Management Information Systems (MIS)** department was revamped to plan for and implement maximum utilization of emerging technologies, both to enhance contact/communications with members and to improve internal processes/technologies within the staff organization. The unit's new name is **SIST: Strategic Information Systems and Technology** which better reflects the function of the group.

- Our **Seminars** department has become the **Development and Services** unit. This group includes expanded education and professional development, consulting activities, increased focus on development of appropriate business opportunities, and increased non-dues revenues.

- For the first time in many years, 1997 saw a significant change in the way the budgeting process occurred. We increased involvement of management staff and required the development of an annual business plan by all units; ensured budget allocations for appropriate research and development; improved the ability to make on-going financial forecasts; and changed and strengthened internal fiscal control policies and accountability.

- We created a new management team to define and implement goals and objectives for the organization and held a management training session provided by an expert in organizational change. This activity was so successful that we expanded it to include all SMS staff.

Going forward, we will provide additional staff training; we will develop and implement a revised performance review system; and identify and implement ways to improve internal staff communications, instilling a sense of teamwork, and a climate of empowerment.

- 1997 saw the implementation of a new membership dues billing system, including "personalized" report cards and promotional materials — differentiated approaches to individual members and to groups with super bills; implemented new processes for membership applications and approval at the county medical society level; implemented new member dues discounts and incentives; and elevated awareness and involvement of all staff in the annual membership drive and activities.

- Completed installation and began utilization of new SMS videoconferencing equipment and capabilities which will allow more members to actively participate in SMS activities.
- Expanded educational and professional development efforts, including initiating joint programs with WMG-MA; developed special programs focusing on the new Medicare documentation guidelines as a key activity in support of members.

- Staffed and completed activities of the Task Force on Governance Structure; initiated assessment of impact of possible implementation of recommendations.

We will review and assess the recommendations of the task force, and disseminate the recommendations and alterna-

tives to the Board, House of Delegates, and SMS membership.

Additional 1998 Goals and Objectives

- Monitor SMS membership especially as a result of decoupling between SMS and PIC Wisconsin; keep the Board of Directors advised of membership developments and prepare appropriate contingency plans relating to SMS membership activities, financial strength, and budget as necessary.
- Complete planning and preparation for the Board's strategic planning process and begin implementation of the new plan as appropriate. As part of the SMS Board strategic planning process, streamline the SMS policy-making and implementation process; evaluate the commission

structure to maximize effectiveness and efficiency.

- Plan and complete the building remodeling project to achieve Americans with Disabilities Act compliance and provide more synergistic and productive groupings of staff units, and add to in-house meeting space in order to achieve cost savings.

All of these activities and staff enhancements will enable the SMS to continue to provide the services and activities you have told us are vital to your professional development. I invite you to actively participate and to continue to monitor the evolutionary process we are undergoing as we strive to offer relevancy to enhance your practices every day.

On behalf of each SMS staff member, I wish you all a healthy and prosperous 1998.



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Medicare Definition of Fraud

With the increasing emphasis and financial resources of the government being dedicated to fraud in the Medicare program, the physician must be aware of the government definition of fraud. If you perform an office service and code the service under the new EM codes as a 99213 you may be guilty of fraud (see table).

Since most physicians utilize the postal service to send statements, you would be also guilty of mail fraud in addition to the other frauds.



The types of service, whether it is an office visit, a hospital visit or a consultation, all carry the same potential for the physician to commit Medicare fraud. The lack of intent to perform the fraud is no longer a defense against the government. You do not even have to have the intent now to perform fraud. According to Medicare and the government you may be guilty just because you are there. The definition of fraud according to the government is so all-encompassing that any physician under the Medicare rules and regulations can be found guilty if the government desires to accomplish this task.

In the future, you may have no choice but to practice outside of Medicare if you intend to stay out of jail and avoid severe repressive monetary fines. The Medicare coding system also defines to perfection Catch-22 much more accurately than Joseph Heller ever perceived. The practice of medicine has deteriorated much more rapidly

than any of us in the profession could ever had predicted. We can only hope that this fraud status represents the bottom and badly needed improvement in physician freedoms associated with a return to the Constitutional Bill of Rights is not too distant on the horizon.

—J. S. Mayersak, MD, Merrill

Editor's note: The SMS is offering special seminars for members

and their staff on the new, 50-page E&M documentation guidelines. Implementation of the new guidelines has been extended through June 30, 1998; however, you are encouraged to implement these as soon as possible. In the spring, seminars on Medicare fraud and corporate compliance will be offered. Please contact **Elaine Stern** at **SMS ext. 386** or via e-mail at: **ELAINES@ smswi.org** for more information.

Service Performed	Service Charged	Fraud
99213	99212	yes
99212	99213	yes
99213	99212 downcode by Medicare	perhaps
99213	99214 upcode by Medicare (not likely)	perhaps
99213	99213 (but performing too many according to Medicare)	perhaps
99213	99213 (but not indicated according to Medicare)	perhaps
99213	99213 (but performed a screening service)	perhaps
laboratory test ordered	Not indicated according to Medicare	perhaps
laboratory test ordered	Not consistent with the diagnosis according to Medicare	perhaps
performed non-chargeable service	Definition left to Medicare	perhaps



Duane Taebel, MD

Who's In The News

Profile of a Physician Citizen of the Year Award Winner*

The Physician Citizen of the Year award honors recipients for the uncompensated civic, cultural, economic, charitable, and health care services they have provided to their local or state communities, recognizing those who have given their time and talents to improve conditions in our state.

Implemented in 1982 as a colleague-nominated award, the Physician Citizen of the Year award's annual nomination process was opened to the public in 1991. The result was an overwhelming outpouring of admiration and affection for Wisconsin's physicians. Each year since then, based on these nominations, the State Medical Society's Commission on Public Information selects up to eight award recipients from various SMS districts in the state.

Duane Taebel, MD, of La Crosse, is one of the eight 1997 SMS Physician Citizen of the Year Award recipients. Doctor Taebel, who specializes in gastrointestinal diseases at the Gunderson Lutheran Medical Center in La Crosse, has found several ways to serve his community while remaining active in his profession.

Doctor Taebel has been involved with the La Crosse Boys and Girls Club, including serving terms as vice-president and president, for several years. He was even inducted into their "Wall of Fame," along with other local volunteer dignitaries. He is also active in his church and currently serves as president of the English Lutheran Church Board of Directors.

In 1990, Doctor Taebel was selected as Festmaster of the La Crosse Oktoberfest celebration — a great honor that is part of this popular and traditional festival. Every year after he has continued to be extremely active with the festival.

"My personal feeling is sometimes physicians don't fare well in community activities and we can do more," said Dr. Taebel.

"I'm busy, but not any busier than some others, and I have some late nights, but I believe it's good to give back to your community."

Doctor Taebel was presented his award at the La Crosse County Medical Society meeting in November by SMS President Sandra L. Osborn, MD.

"Doctor Taebel has demonstrated his commitment to his profession for over thirty years," said Dr. Osborn during the ceremony.

"Just as important, however, is the commitment he has given his community. It would be a very different world if more physi-

cians strived to find a balance between work and service to their communities."

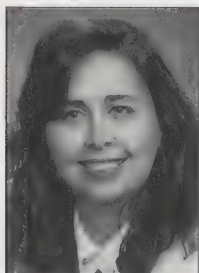
Doctor Taebel was nominated by colleague, Frank Aberger, MD.

"Duane is so civic-minded and he has always been a community-minded, family type of person," Dr. Aberger said. "He does so much for the community, more than most. His patients also think highly of him and he has the respect of fellow physicians."



*The 1997 SMS Physician Citizen of the Year Award was awarded to eight individuals around the state. The *WMJ* will profile each of these award recipients in upcoming issues.

Who's In The News



Mary Abdulky, MD



Nandita Bhattacharjee, MD



Mark Druffner, MD



Paul Erickson, MD

Mary Abdulky, MD, an internist/rheumatologist, joined the staff at Prevea Clinic-Oconto. Doctor Abdulky received her medical degree from the University of Damascus in Damascus, Syria. She served a rotating internship at that institution, followed by a residency and internship at Our Lady of Mercy Medical Center in Bronx, New York. Doctor Abdulky completed a fellowship in

rheumatology at New York Medical College Metropolitan Hospital Center in New York City.

Steven Bahrke, MD, a

family physician, completed his recertification by the American Board of Family Practice. Doctor Bahrke received his medical degree from the University of Wisconsin-Madison. He completed his residency and internship at St. Elizabeth Hospital, Appleton and currently practices with Plover Family Practice, Plover.

Husam Balkhy, MD, a cardiothoracic surgeon, joined the hospital staff at Community Memorial Hospital of Menomonee Falls. Doctor Balkhy works with Wisconsin Heart Group, SC, Milwaukee. He earned his medical degree from King Abdul Aziz University College of Medicine and Allied Sciences, Jeddah, Saudi Arabia. Doctor Balkhy completed his residency at New England Medical Center, Boston, MA.

Nandita Bhattacharjee, MD, a radiologist, has joined the Marshfield Clinic. She earned her medical degree from Ohio State University College of Medicine in Columbus, OH.

James J. Beier, MD, has joined the North Central Health Protection Plan as the Plan Medical Director where he will serve as the principal liaison between NCHPP and the providers on matters of medical policy and issues of individual care of NCHPP members. Doctor Beier earned his medical degree from the University of Illinois College of Medicine, Chicago, IL, and practiced at the Marshfield Clinic-Mosinee Center for 17 years.

Bev Bohac, MD, a family physician, recently delivered her 700th baby since joining the Spooner Community Memorial Hospital and Duluth Clinic-Spooner in July 1983. Doctor Bohac was the first female physician in the Spooner area.

Timothy R. Boyle, MD, an otolaryngologist, recently became a Fellow of the American College of Surgeons. Doctor Boyle received his medical degree from the University of Iowa in Iowa City, and completed a residency in otolaryngology at the University of Virginia, Charlottesville, VA. He is currently practicing at the Marshfield Clinic where his primary interest is in rhinology and cancers of the head and neck.

Anne Dayer, MD, a pathologist, joined the Community Memorial Hospital of Menomonee Falls. She earned her medical degree from the University of Geneva, Switzerland. Doctor Dayer completed her residency with the Medical College of Wisconsin Associate Hospitals.

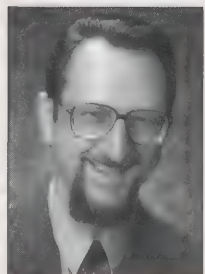
Mark R. Druffner, MD, a family physician, joined the Hudson Physicians Clinic, Hudson. Doctor Druffner served as a physician and assistant surgeon in Kenya, Africa in 1991-92. He received his medical degree from Boston College and Jefferson Medical College of Thomas Jefferson University in Philadelphia. His residency was served at the University of Minnesota Hospital, North Memorial Division and at Hennepin County Medical Center.

Richard Ellis, MD, a pediatrician, recently received the American Academy of Pediatrics Review and Education Program Education Award. Doctor Ellis practices pediatrics and adolescent medicine, with a special interest in behavioral issues, at the Physicians Plus-Fitchburg Clinic, Fitchburg.

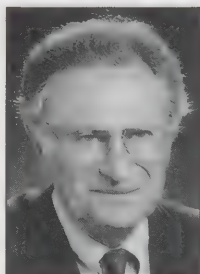
Dan Erickson, MD, a family physician with Physicians Plus, was recently elected to the Beaver Dam Community Hospital Corporation's board of directors. Doctor Erickson received his medical degree at the University of Wisconsin Medical School and served an internship and



Who's In The News



Mark Giovanelli, DO



Marvin Glicklich, MD



Timothy P. Grady, DO



Bernard Herzog, MD

residency at Broadlawns Medical Center in Des Moines, IA.

Paul Erickson, MD, a family physician associated with Iola Family Practice, recently received the degree of Fellow of the American Academy of Family Physicians. Doctor Erickson earned his medical degree from North Dakota School of Medicine, Grand Forks, ND. A residency in general surgery was completed at St. Joseph's Mercy Hospital, Ann Arbor, MI, and a residency in family practice at the University of North Dakota Affiliated Hospital, Fargo, ND.

Mark Flick, DO, an otorhinolaryngologist, was named Chief of Staff at Memorial Hospital in Oconomowoc for 1997-98. Doctor Flick earned his medical degree from Kirksville College of Osteopathic Medicine in Kirksville, MO, and completed his internship and residency at the U.S. Naval Hospital in Oakland, CA, and practices at Wilkinson Medical Clinics-Aurora Medical Group in Oconomowoc.

Mark J. Giovanelli, MD, a family physician, joined the Hudson Physicians Clinic in Hudson. Doctor Giovanelli holds a degree in osteopathic medicine and surgery from University Health Care Sciences in Des Moines, IA. His internship was completed at Davenport Medical Center.

Marvin Glicklich, MD, a pediatric surgeon, received the first Franklin D. Roosevelt Award from the March of Dimes Birth Defects Foundation, South-eastern Wisconsin Chapter on November 13. Doctor Glicklich earned his medical degree at the University of Wisconsin Medical School. His internship was completed in Youngstown, OH and surgical residency was at the Wood Veterans Hospital in Milwaukee. Fellowship training in pediatric surgery was obtained at Children's Memorial Hospital in Chicago.

Timothy P. Grady, DO, a cardiologist, joined Cardiovascular Associates of Northern Wisconsin, SC, Wausau, WI. Doctor Grady earned his medical degree from the University of Health Science, Kansas City, MO. He completed fellowships in cardiology at the University of South Alabama, Mobile and the Galicia Medical Group, PA, Wichita, KS. An internal medicine residency was completed at the University of Missouri.

Robert Greenlaw, MD, a radiation oncologist, was named an honorary lifetime member of the American Cancer Society during the Wood County North Unit's quarterly meeting. He has served as a unit board member since 1977 and has held a number of posts both locally and at the state level and has worked on a number of committees

promoting cancer awareness. Doctor Greenlaw is a past president of the Wisconsin Division of the American Cancer Society as well as past board chairman of the local unit. He is also actively involved with the Wood County Tobacco-Free Coalition and is working to get a smoke-free environment for employees in the community.

Allen Hanson, MD, and **Sara McDonald, MD**,

have joined the St. Mary's/Duluth Clinic Health System in their Emergency and new Urgent Care Center at the hospital. **Doctor Hanson** earned his medical degree from the University of Wisconsin Medical School and completed his emergency medicine residency at Broadlawn's Polk County General Hospital in Iowa. **Doctor McDonald** received her medical degree at the University of Minnesota. She completed her residency in family practice in Pennsylvania.

Bernard F. Herzog, MD, a general surgeon, joined Marshfield Clinic-Chippewa Center. Doctor Herzog earned his medical degree from the University of South Dakota School of Medicine in Vermillion and the University of Wisconsin Medical School. He served a residency in general surgery at Sacred Heart Hospital in Yankton, SD.



Who's In The News



John M. Kirsch, MD



Kristi Knuijt, MD



Mark Lanser, MD



Patrick Marsho, MD

Richard Jennings, DO, an otolaryngologist, was recently elected to the Beaver Dam Community Hospital Corporation's board of directors. Doctor Jennings earned his medical degree from the Chicago College of Osteopathic Medicine.

William Jeranek, MD, a family physician, has been recertified and earned the status of Diplomate to the American Board of

Family Practice. He graduated from the University of Wisconsin Medical School and practices in Kenosha, and is affiliated with

Aurora Health Care.

Jay Keepman, MD, a family physician from Grantsburg, WI was recently honored for 35 years of membership in the American Academy of Family Physicians at its meeting held in Chicago.

John Kirsch, MD, an orthopedic surgeon at North Shore Medical Clinic in Sturgeon Bay, recently returned from his eighth trip to Russia where he helped complete the first total knee replacement surgery ever done in Yaroslavl. Doctor Kirsch started the 'Scopes for Russia Foundation' in 1992 and since that time donations of medical equipment and supplies to Russian hospitals have totaled nearly \$1 million.

Kristi Knuijt, MD, a dermatologist, and **Mark Lanser, MD**,

a neurologist, began seeing patients at the Evansville Clinic, Evansville. **Doctor Knuijt** received her medical degree from the University of Wisconsin Medical School. Doctor Knuijt completed her internship in family practice at St. Francis Hospital in La Crosse and her residency in dermatology from the University of Wisconsin Hospital and Clinics in Madison. **Doctor Lanser** received his medical degree from the University of Wisconsin Medical School and completed his internship in internal medicine at the Jewish Hospital of St. Louis and residency in neurology from the Barnes Hospital in St. Louis. His special interests include headache and pain management, epilepsy, Parkinson's and Alzheimer's diseases and care of work-related injuries.

Hanns Kretzschmar, MD, a retired internist from Appleton, recently received the American Cancer Society's Quality of Life Award, which honors volunteers who enhance the lives of Wisconsin's cancer patients. Doctor Kretzschmar was chosen for his years of service, quality of service delivery, number of cancer patients who have benefited from his effort, leadership and initiative, and a commitment to the ACS mission.

Rachel Arnold Long, MD, a psychiatrist with the Monroe

Clinic, was a featured speaker at a Town Hall Meeting on Women's Health Part II - What Every Woman Should Know held at the Dane County Exhibition Hall, November 1.

John R. Milbrath, MD, a radiologist, was elected president of the Wisconsin Division of the American Cancer Society Board of Directors. He has been an active volunteer with the American Cancer Society, serving on numerous statewide committees including patient services, rehabilitation and public issue committees. He has led numerous efforts to increase mammography services, improve treatment and provide information to physicians at the state and national level. Doctor Milbrath has received numerous awards, including the Ruby Lifesaver Award, the Harriet Timmler Service Award, and, in 1992 former President George Bush presented him with the 538th Point of Light volunteerism award for his work on the Milwaukee Breast Cancer Awareness Program. Doctor Milbrath is an associate clinical professor of radiology for the Medical College of Wisconsin, a clinical associate professor of obstetrics and gynecology for the University of Wisconsin Medical School, and is in private practice at Breast Diagnostic Clinic, SC, in Waukesha.



Who's In The News



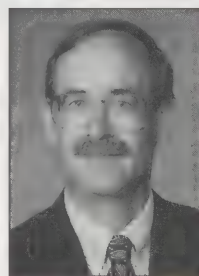
John Milbrath, MD



Michael Monson, MD



Charles Rainey, MD, JD



Kurt Reed, MD



Nasima Soomar, MD

Michael J. Monson, MD, a general and vascular surgeon, recently joined the Marshfield Clinic-Lakeland Center. Doctor Monson received his undergraduate degree in biology and chemistry from the University of California-Irvine, and his medical degree from the Medical College of Wisconsin. He served his residency in general surgery at Loma Linda University and a residency in general surgery-vascular surgery at White Memorial Medical Center in Los Angeles, CA.

Patrick Marsho, MD, was named the medical director of Meadow View Manor Nursing Home in Sheboygan. Doctor Marsho earned his medical degree at the Medical College of Wisconsin and completed his family practice residency at the University of Illinois, Rockford. He also holds a certificate of added qualifications in geriatric medicine.

Robert S. Pavlic, MD, who has delivered about 7,000 babies in his 33-year career, was honored recently by having the New Women's Health Center at Elmbrook Memorial Hospital dedicated to him and his wife. He and other physicians played a key role in the planning and construction of Elmbrook Memorial Hospital, which opened in 1969. Both he and his wife, Sandy, have devoted much of their lives to community service and various organizations in the Brookfield

area. Doctor Pavlic has also provided family education on reproductive issues to schools in the Milwaukee Archdiocese -- a first in the area.

Kenneth Pechman, MD, was recently promoted to advanced standing within the American College of Physician Executives. Doctor Pechman is president of Kurten Medical Group, and serves on the college's forum on medial quality and the forum of advanced technology and informatics.

Curtis Radford, MD, an internist with La Salle Clinic, and **Eric Wilson, MD**, an Oshkosh radiologist, were recipients of the Healthcare Hero Award presented by the Mercy Medical Center Foundation. **Doctor Radford** received the award on behalf of the countless number of low-income citizens who have benefited from the contribution of his medical skill and compassion. **Doctor Wilson** was honored for his tireless commitment to health care and Mercy Medical Center. His contributions include the addition of ultrasound, CT scanning and MRI, and he also helped to engineer a mobile mammography unit.

Charles J. Rainey, MD, JD, resident with the Medical College of Wisconsin Department of Psychiatry and Behavioral Medicine, was elected Chair-Elect of the American Medical Association Resident Physician Section (AMA-RPS) at the AMA Interim

Meeting in December. Doctor Rainey currently serves as Secretary of the AMA-RPS Governing Council. Doctor Rainey's activities with the SMS include serving as Vice Chair and Chair of the SMS-RPS and member of WIS-PAC. He is also a member-in-training with the American Psychiatric Association. Dr. Rainey received his medical degree from Loyola University Chicago Stritch School of Medicine and served an internship with the Medical College of Wisconsin Affiliated Hospitals. He also earned a law degree from Marquette University Law School.

Kurt Reed, MD, a pathologist with a clinical and research specialty in infectious disease, received the Sebold Award which recognizes an outstanding Marshfield medical complex researcher and supports continued research in their chosen field. Doctor Reed's research focused on emerging tick-borne infectious diseases, specifically Lyme disease and human granulocytic ehrlichiosis. He is currently associate director of Marshfield Laboratories and medical director of five separate training programs affiliated with St. Joseph's Hospital.

Peter Sanderson, MD, a family physician, successfully completed recertification by the American Board of Family Practice. Doctor Sanderson



earned his medical degree from the Medical College of Georgia and now practices at Plover Family Practice, Plover.

David Schifeling, MD, an oncologist/hematologist from Marshfield Clinic, has joined the staff at Sacred Heart Hospital. Doctor Schifeling received his medical degree from Pritzker School of Medicine at the University of Chicago and completed his residency in internal medicine at Medical University of South Carolina, Charleston. He completed a fellowship in oncology/hematology at Wake Forest University Comprehensive Cancer Center in Winston-Salem, NC.

Nasima Soomar, MD, an internist, has joined the medical staff at Marshfield Clinic-Park Falls Center. Doctor Soomar received her medical degree from Sind Medical College in Karachi, Pakistan. She served a residency in internal medicine at Cook County Hospital in Chicago, IL.



Michael Volk, MD, a hematologist and oncologist working out of Kettle Moraine Oncology in West Bend, has joined the hospital staff at Community Memorial Hospital of Menomonee Falls. Doctor Volk completed his residency at the University of Wisconsin Hospitals.

Donald L. Wachwitz, MD, an orthopedist, has been elected to Active Member status in the American Orthopaedic Society for Sports Medicine. He has been active in the development of the Sports Medicine Clinic in Ashwaubenon and was instrumental in the formation of outreach programs placing certified athletic trainers in the area high schools. Doctor Wachwitz is the team physician for St. Norbert College and continues to provide volunteer physician coverage for many high school and community athletic events.

In Remembrance

Becher, Leo E., MD, 78, a family physician from Lancaster, passed away on November 27, 1997, at his home. Doctor Becher was a World War II veteran having served in the United States Army Medical Corps from 1942-1945. He earned his medical degree from the Marquette University Medical School and completed his internship at St. Mary's Hospital in Milwaukee and residency at St. Michael's Hospital, Milwaukee. Doctor Becher practiced at the Grant Community Clinic in Lancaster until his retirement in 1994. He served as Grant County Coroner from 1960 to 1976. Doctor Becher is survived by six children: John of Denver, CO, James of Madison, Mary Elwell of Crystal, MN, Mark of Rialto, CA, Gregory of Santa Paula, CA, and Catherine Donnelly of Scranton, PA; two step-children: Pat Graham of Barneveld and Thomas Peterson of Junction City; 12 grandchildren and five step-grandchildren.

Brewer, Bruce J., MD, 83, an orthopedic surgeon from Whitefish Bay, passed away on November 9, 1997. Doctor Brewer earned his medical degree at Marquette University Medical School. He completed his internship and residency at Milwaukee County General Hospital and Duke University. Doctor Brewer held memberships in the Academy of Orthopaedic Surgery, American Orthopaedic Association, American Medical Association, and was inducted into the SMS Fifty Year Club in 1990. Doctor Brewer is survived by his wife, Kathryn; four children: David, Sue Samuelson, Kathy Russell, Bruce; and six grandchildren. He was preceded in death by a son, Peter.

Burch, Kim R., MD, 50, an obstetrics and gynecology physician from Colgate, died October 22, 1997, at his home. Doctor Burch was associated with Medical Associates in Menomonee Falls and Germantown and Community Memorial Hospital. He earned his medical degree from the Medical College of Wisconsin, Milwaukee and completed his internship and residency at the Milwaukee County Medical Complex. Doctor Burch is survived by his wife, Susan; and three children, Ryan, Becky, and Andrew.

Jahn, Richard "Paul", MD, 83, an internist, from Brookfield, WI, died October 22, 1997. Doctor Jahn was a physician at Muirdale Sanatorium, was Director of Milwaukee County TB Control, served as Chief of Staff at Deaconess Hospital, was Medical Director of Rehab West, Professor Emeritus of the Medical College of Wisconsin, and served on the staff of Milwaukee Lutheran, Columbia and VA Hospitals. He was a pioneer in pulmonary function and an honorary Fire Chief of Milwaukee. Doctor Jahn was a member of the 50 Year Club of the State Medical Society. He is survived by six children: Patricia Starr of Wauwatosa, Nancy Kapp of Lake Mills, Olivia Jahn, Richard P. Jahn, Jr., Barbara Richter, all of Brookfield, and JoAnne Jahn of Allenton; nine grandchildren and four great-grandchildren.

Kappus, Harold C., MD, 81, a general practitioner and psychiatrist formerly of Kenosha, passed away at his home in Arizona on November 4, 1997. Doctor Kappus earned his medical

continued on p. 15

degrees at Creighton and Northwestern Universities. During World War II, he served as a medical officer on ships in the South Pacific. He was the former chief of staff at both Kenosha Hospital and St. Catherine's Hospital. Doctor Kappus was a member of several organizations, including the American Medical Association, the State Medical Society and Kenosha County Medical Society. He was inducted into the SMS 50 Year Club in 1990. Doctor Kappus is survived by his wife, Dorothy; five children: Donald of Plano, TX; Ronald of Princeton, NJ; Frederick of Manassas, VA; Jack Bishop of Orlando, FL; and Judith Bradley of Mequon; eight grandchildren and a great-grandchild.

Kruse, Jr., Francis, MD, 73, a neurologist, died on October 19, 1997, in Marshfield. Doctor Kruse served in both the U.S. Army and U.S. Air Force before retiring in 1961 to join the Marshfield Clinic as its first neurologist. He was a founder and president of the Wisconsin Neurological Society. Doctor Kruse served as secretary and president of the Wood County Medical Society and served two terms as Wood County Coroner. He was a member of many professional organizations and taught as a part-time professor at the University of Wisconsin Medical School. He is survived by his wife, Charlotte; four children: Josephine Kleiber of Edina, MN, John Kruse of Marshfield, Nancy Young of Mequon, and Frances Kruse of Madison; and eight grandchildren.

Phillips, Paul W., MD, 79, an orthopedic surgeon from Trempealeau, WI, died on November

9, 1997, after a long illness. Doctor Phillips earned his medical degree from Northwestern University Medical School. He took his internship and residency training at St. Luke's Hospital in Chicago, IL. He joined the Navy as a medical student and assistant medical officer in 1945. Doctor Phillips was one of the founders of the original La Crosse Clinic. He practiced at St. Francis Hospital in La Crosse until his retirement in 1986. Doctor Phillips is survived by his wife, Jean; four children: JoDee Tolokken of La Crosse, Barbara Lightner of Rice Lake; Paul W. Phillips, Jr., MD, and Timothy Phillips, both of Carson City, NV; seven grandchildren; one great-grandchild; and a sister, Lucy Micklejohn, of Waupaca, WI.

Sorensen, Harold E., MD, 81, an orthopedic surgeon from Eau Claire, passed away on October 24, 1997, in Knoxville, TN. He received his medical degree from the University of Wisconsin Medical School and completed a residency in orthopedic surgery at Tulane University in New Orleans, and an orthopedic internship in Eau Claire. He was a member of the U.S. Army Medical Corps and was stationed at Fitzsimmons Army Hospital in Denver, CO, for four years. Doctor Sorensen practiced at the Middelfort Clinic for 34 years, before retiring in 1983. He is survived by his wife, Irene; three children: Richard of Minneapolis, MN, Steven of Stillwater, MN, and Jane Poquette of Eau Claire; two stepdaughters: Cristel Schulz Alvin of Wyoming, MN and Caryn Schulz Passell of Eau Claire; and six grandchildren.

AMA Awards

The Wisconsin physicians listed below recently earned AMA Physician's Recognition Awards. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations. The • indicates members of the SMS.

- John I. Betinis, MD
• John T. Bolger, MD
• Modesto M. Ferrer, MD
• Lawrence G. Leibert, MD
• Roger W. Park, MD
• Richard G. Roberts, MD
• Abraham Rodriguez, MD
• Sanjeev N. Shukla, MD

Thoughts on Telemedicine— *Continued from p. 1*

Extensive discussion of program offered, including textbook and readings.

www.ncbi.nlm.nih.gov/PubMed — The National Library of Medicine's extensive database of journals.

www.ovid.com — A platform of independent access to bibliographic and live, full text databases for academic, biomedical and scientific research.

www.silverplatter.com — Similar to Ovid's, an extensive site with journals from around the world.

www.tie.telemed.org/TIEmap.html — The Telemedicine Information Exchange is an award-winning site with searchable databases, abstracts and newsletters, business news about telemedicine, listings of companies providing telemedicine products and services, and more.

www.duke.edu/~sjd1/pageone.html — Duke University site with basic information on "Health and Medicine on the Internet." A good patient resource.

www.medsite.com — A searchable database of medical conditions, also good for patients.

For an extensive search on Telemedicine on the Web, look to Yahoo, www.yahoo.com/Health/Medicine/Informatics/Telemedicine.



Welcome New Members

The individuals listed below were recently elected to SMS membership by their county medical societies. We are pleased to welcome them to the SMS.

Brown

Ronald Barnes, MD
Jeffrey Block, MD
James R. Clemens, MD
Loren Fuglestad, MD
Mark R. Schick, MD
Patricia McDougall Schick, MD
Paul Utrie, MD
Danny Wolfgram, MD

Chippewa

Rajeshwar Hanmiah, MD

Clark

Maria Graziella A. Cruc-
Apolinario, MD

Douglas

David M. Worley, MD

Fond du Lac

Orestes A. Alvarez-
Jacinto, MD
Dana G. Ilea, MD

Grant

Jeffrey L. White, DO

Kenosha

Nora E. Rowley, MD
W. Harley Sobin, MD

Manitowoc

Brian P. LaLiberte, MD
Hye Chong L. Lampert, MD

Marathon

Timothy P. Grady, MD
James M. Lau, MD
Robert F. Tyree, MD

Milwaukee

Lee Angelique Anderson, MD
Karen Leigh Babel, MD
Thomas M. Bachhuber, MD
Sadaf Bazargan
Kenneth T. Bastin, MD

Jonathan J. Bates, MD
Jon Scott Berlin, MD
Susan Rhea Bernstein, MD
Michelle Rae Bonness, MD
Andrew Paul Brayer, MD
Sanee M. Brynildson, MD
Shari Lyn Burns
Mitchell G. Carneol, MD
Eric Paul Conradson, MD
Laurin A. Craig
Beth A. Damitz
Shobha P. Desai, MD
Sundee Dev, MD
Christine M. Dignan
Jason M. Evans
Jason R. Friedlander
Kimberly J. Hardy
Yolanda F. Holler
Mitchel M.S. Kim, MD
Bradley W. Kirschner
Barbara Lynn Kolp, MD
Deborah A. Kozak, MD
Stuart R. Kortebein, MD
Matthew D. Krell
Elsa J. Lee
Loren Andrea Leshan, MD
Brian D. Lewis
Tracy M. Lewis
Allan Lipkowitz, MD
Mark Daniel Lopez, MD
Jeffrey R. Maehl
Douglas E. Marx
Bruce Michael Massaro
Alfred Meyers, MD
Jill Frances Mocarski, MD
George M. Monese, MD
Xuan-Mai T. Nguyen
Jason K. North
Srinivas R. Pamidi, MD
McKinley Petty, III, MD
Hong Qian
Mark S. Remshak
Jennifer A. Renaud
Jagmeet S. Soin, MD
Katherine R. Stevenson, MD
Lawrence Gordon Strate
Brian Thomas Sullivan, MD
Sandhya Sureddi, MD
Kawsar R. Talaat
David J. Tovey
Michael Kenneth Tye, MD
Carla L. Wright, MD
Teresa Zyglewska

Oconto

Iris T. C. Perez, MD
Frank M. Rales, MD

Oneida-Vilas

Daniel E. Tvedten, MD

Outagamie

Edward D. Bayer, MD
Cheryl Deets, MD
Robin Goldsmith, MD

Ozaukee

Mohammad Q. Khan, MD

Polk

Michele E. Armstrong, MD
Andrew G. Mayo, MD
Susan K. Roberts, MD

Racine

Jennifer J. Brittig, MD
Kristin M. Crowe, MD
Michael A. Hindman, MD
Sridevi Koritala, MD
Ramesh B. Peramsetty, MD
James J. Scerpella, MD
Leyla M. Solis, MD
John J. Yang, MD

Rock

Russell D. Albert, MD
Mark J. Hsu, MD

Sheboygan

Edmund C. Dy, MD
Dwight Dyksterhouse, MD
Steven Hogan Falconer, MD
Loren Fraser Guy, MD
George V. Kuttickat, MD

Washington

Robert S. Goldman, MD

Wood

Alphonse DeLucia, MD
Gary Eddy, MD
David Grekin, MD
Nancy Bender Hausman, MD
Matthew Jansen, MD
Kathryn Lynn, DO
Stella Patten, MD
Gregory Powell, MD
Joseph Welter, MD





Guest Editorial

Condemned to Live The Dilemma Posed by the Case of Edna M.F.

by William J. Hisgen, MD, Chair,
SMS Commission on Medicine and Ethics

On June 12, 1997, the Wisconsin Supreme Court decided in the case of an elderly woman (Edna M.F.) with advanced Alzheimer's dementia who had lost decisional capacity. She did not meet the definition of being in a persistent vegetative state and was being kept alive by a surgically-inserted feeding tube. Her family wanted the tube discontinued because, in the past, Edna M.F. had stated that she would rather "die of cancer than lose her mind." She had a court-appointed guardian, because she had to be placed in a nursing home. There were no written medical directives, and the court decided that her prior statements were not explicit enough under the circumstances at hand.

In the absence of written or oral documentation to the contrary, the Court ruled that a guardian may not withdraw life-sustaining medical treatment, including artificially-administered nutrition and hydration, from a patient, unless that patient is in a persistent vegetative state. The court stated that the legal standard for such decisions is in the best interest of the patient.

The court expressed that in the absence of a persistent vegetative state, and an absence of an advance directive or other statement clearly indicating his or her desires, an incompetent person's interests are always served best by keeping him/her alive.

While this ruling dealt with a court-appointed guardian's role, there are real concerns that it also applies to other patient surrogates, including the Power of Attorney for Health Care agent,

since all of these possess less legal authority than a court-appointed guardian.

The ruling emphasizes the importance of documenting a patient's end-of-life health care concerns by those who may end up determining the patient's fate. Ideally, this should be in the form of a written "Advance Medical Directive." However, the Court will also accept documented conversations.

The Power of Attorney for Health Care document was created to improve the certainty that the patient's (the principal) wishes would be carried out after he/she lost the capacity to make medical decisions (decisional capacity). The explanatory material that is generally distributed along with the official document urges that the principal have a detailed discussion with the health care agent concerning end-of-life decision making. After these discussions, the principal is to send either a copy of the original document or the original document to the primary care physician's office. [Note New Balanced Budget of 1997 requirement: documentation of whether the patient has executed an advance directive must be maintained in a "prominent" part of the medical record.] Despite these recommendations, the returned document often does not contain any confirmation of the discussions that have taken place.

While the Power of Attorney for Health Care document does discuss many of the agent's responsibilities, it is clear that the agent does not always understand

what he/she is signing. Some agents think they assume their role as soon as the principal is ill. Others do not want to follow the directive of the principal. Many times, there are no additional directives other than those already outlined in the document. In light of the ruling, in the Matter of the Guardianship and Protective Placement of Edna M.F., this is unacceptable.

For this reason the Commission on Medicine and Ethics feels a more comprehensive checklist of issues needs to be discussed. Included at the end of this article is a short outline of the responsibilities of the health care agent and a list of topics for discussion. In addition, we have included an Addendum to the Health Care Power of Attorney which should be signed by the patient and affixed to the Advance Medical Directive or Power of Attorney for Health Care document. This will provide clearer evidence of what an individual wishes, when he/she loses the capacity to make decisions at the end of life.

These guidelines are templates upon which other ethics committees may want to build. They have been included in the *WMJ* in a format that can be photo copied for easier distribution to your patients. The Commission on Medicine and Ethics welcomes any suggestions on improving this document. Please send your comments to Maria Van Cleve at the SMS, or contact her at SMS ext. 263 or via e-mail at: MARIAV@smswi.org.



Your Responsibilities as a Health Care Agent

What is a Health Care Agent?

Competent adults have the right to make decisions regarding their health care. This competency is technically referred to as decisional capacity. This means that competent adult patient understands the nature of his/her illness, the proposed treatment choices and the benefits and burdens of accepting or refusing those choices. He/She must also be able to communicate those choices. The law states that the patient (sometimes called the Principal) may delegate his/her decision-making power to some trusted individual (via a document known as the Power of Attorney for Health Care) in the event that the patient loses decisional capacity. This individual thereby becomes the Health Care Agent for the patient.

Are you eligible to be a Health Care Agent?

You have been chosen as someone's Health Care Agent. In order to have legal rights as a Health Care Agent you must be at least 18 years of age. You may not be the patient's Health Care Provider or Health Care Provider's employee unless you are related to the patient. You are probably a trusted friend or relative of the patient. You should feel confident that the patient has decisional capacity at the time the Power of Attorney for Health Care document is signed and witnessed.

When must you assume your responsibilities?

As a Health Care Agent you have two separate areas of responsibility. The first is to know what the patient would want in the event that he/she loses decisional capacity. As soon as you are designated as someone's Health Care Agent you should make every effort to determine his/her wishes. The second area of responsibility is to act in the patient's best interests and in accordance with his/her wishes should the need arise. You are responsible for health care decisions regarding the patient, *if and only if, the patient loses decisional capacity*. By Wisconsin Law, two physicians or one physician and a psychologist must evaluate the patient and sign a formal declaration to that effect.

What are your responsibilities?

Your main responsibility while the patient is still competent is to know and understand his/her concerns and beliefs about continuing life-sustaining medical treatment (including the insertion of tubes for the purpose of delivering food and water) if the patient loses decisional capacity. You must be willing to make and communicate decisions to the health care team consistent with the patient's wishes. Realize that your job and responsibility is not to do what you would want, but what the patient would want. There may be situations where the patient did not tell you exactly what he/she might want in a given circumstance. In this case, you should base your decisions on what you think is best for the patient based on your knowledge of his/her overall values and wishes. Moreover, you might find consulting with the hospital ethics committee or an ethicist will be useful.

In becoming a Health Care Agent you have assumed a position of great trust. If, during your discussions with the patient, it becomes clear to you that you would have difficulty acting in the manner requested by the patient, you must give up your position as Health Care Agent.

If the patient loses the ability to make decisions and the Power of Attorney for Health Care Document is activated, you will need to communicate regularly with the patient's attending physicians. You will need to stay informed as to the patient's condition, the treatment plan and the chances for recovery (prognosis). It is up to you to be certain that the treatment goals match the wishes of the patient. Some physicians may have a hard time following a course that you feel the patient would want. The physician may, for example, want to follow a particular treatment plan that will keep the patient alive, even if it means surviving at a much lower level of functioning. If you know this is not what the patient would want, you must tell the physician this.

If the physician seems unable to act according to the patient's wishes as you have stated them, or if you feel the need for help in making these decisions, you should seek help from the hospital ethics committee, the hospital social worker or chaplain, the hospital administration or an attorney.

Questions you should ask the patient to help you in determining how to make health care decisions for him/her.

Write down the answers. Keep them in a safe place, so you'll know where they are if you need them.

- Do you think it's a good idea to sign a legal document that says what medical treatments you want and do not want when you are dying? (This is called a "living will.") Do you have a living will? Where is it?
 - Do you think you would want to have any of the following medical treatments performed on you?
 - a. kidney dialysis (used if your kidneys stop working)
 - b. cardiopulmonary resuscitation (used if your heart stops beating)
 - c. respirator (used if your lungs stop working)
 - d. artificial nutrition (used if you are unable to eat)
 - e. artificial hydration (used if you are unable to drink)
 - Do you want to donate parts of your body to someone else at the time of your death? (This is called organ donation.)
 - How would you describe your current health status? How do you feel about your health?
 - Do you like your doctor? Why or why not?
 - Who do you think should make the final decision about any medical treatments you might need?
 - How important is independence/self sufficiency in your life? If your physical and mental abilities were decreased, how would that affect your attitude?
 - Do you expect your friends and family to be supportive of your decisions regarding medical treatment you may need now or in the future?
 - What do you think will be important to you as you are dying? (e.g., pain control, family members present, etc.)
 - How do you feel about the use of life-sustaining measures in the face of: a terminal illness, a permanent coma, irreversible chronic illness (for example, Alzheimer's disease)?
 - Do you wish to make any general comments about your attitude toward illness, dying and death?
 - What part does religion play in your life? How do your beliefs affect your attitude toward serious or terminal illness?
 - How does your faith community, church or synagogue view the role of prayer or religious sacraments in an illness?
 - Do you wish to make any general comments about your religious background or beliefs?
 - What else do you think I should know so I can make decisions about your health care as you would make them if you were able to?
-

Addendum

to the Power of Attorney

I value a full life more than a long life. If I have lost the ability to interact with others and have no reasonable chance of regaining this ability; or if my suffering is intense and irreversible even though I have no terminal illness, I do not want to have my life prolonged. If I am unable to communicate my wishes please:

- ☐ Do not use any life-sustaining procedures.
- ☐ Do not use feeding tubes, including stomach tubes, nasogastric tubes or intravenous feedings except to increase my comfort or reduce my pain.
- ☐ Do not perform any surgical procedures except to increase my comfort or reduce my pain.

Do not do any testing which may cause me any distress unless it helps to reduce my discomfort or pain.

- ☐ Do not do any radiation or chemotherapy unless it helps to reduce my discomfort or pain.

Do not do any resuscitation or advanced life support.

No kidney dialysis, either peritoneal or hemodialysis.

Err on the side of over-medication rather than under-medication for pain, even if taking such results in my death. The goal of pain management is total relief of pain regardless of the risks.

- ☐ Be an active advocate as my Health Care Power of Attorney. Do not simply acquiesce to decisions that physicians make. Ask questions and understand proposals, challenge assumptions and be prepared to say “no” to care which I would not want and to demand care that I would want.

- ☐ Other thoughts:

As used in the Addendum I intend that the following terms have the following meanings:

“Terminal Condition” means an incurable condition caused by injury or illness that reasonable medical judgement finds would cause death imminently, so that the application of life-sustaining procedures serves only to postpone the moment of death.

“Persistent Vegetative State” means a condition that reasonable medical judgement finds constitutes complete and irreversible loss of all the functions of the cerebral cortex and results in a complete chronic and irreversible cessation of all cognitive functioning and consciousness and complete lack of behavioral responses that indicate cognitive functioning, although autonomic functions continue.

“Advanced Dementia or Other Similar Mental Incapacity” means a brain illness or brain injury, including traumatic head injury, brain disease which is vascular in origin, Alzheimer’s disease, and other brain illnesses or dementia caused by infirmities of aging, which is permanent and irreversible and which causes a substantial diminishment in the quality of my life as evidenced by: 1.) an inability to recognize my family and friends, 2.) an inability to communicate meaningfully to my family and friends, and 3.) an inability to provide for my own care and custody.

“Life Sustaining Procedures” means any medical procedure or intervention that, in the judgement of the attending physician, would serve only to prolong the dying process, but not prevent death.

Signature: _____

Date: _____

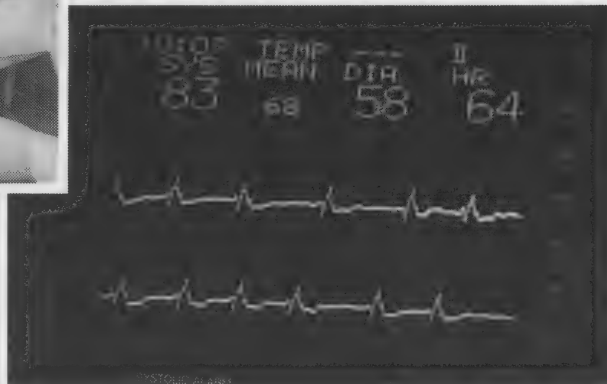
Telemedicine

Brave New World or Back to the Future?

By Marc Kennedy, Special to WMJ

Little more than a decade ago, the term "telemedicine" — if it were used at all — referred to sending a file in the mail or by facsimile, or making a phone call to a colleague. Today, from

changes in procedures and policies concerning accuracy, privacy, access, reimbursement and licensure, or will do so ultimately. If health care organizations are not proactively altering their operations internally



conducting videoconferences and CME seminars, to sharing medical files, laboratory test results and CT images, to interactive videoconsultation and long-distance diagnostics, the applications of telemedicine are becoming as numerous as they are sophisticated.

Many of these technological advances are demanding concomitant

with regard to telemedicine, certainly external forces — namely legal, and perhaps, ethical — will likely demand attention to the issue.

But when it comes to acceptance by physicians and patients, the primary questions remain regardless of whether the new technology is a method of transferring blood test results across the street or a real-time satellite video-feed

from a remote ER 1,000 miles away — does it help clinicians deliver health care effectively and efficiently, and who is going to pay for it?

Despite these questions, there is no doubt that telemedicine, in a variety of forms, is here to stay and is increasing in its scope and application. By 2000, most physicians in the U.S. will be involved clinically in some way with telemedicine, according to a *JAMA* article in 1995 on "Telemedicine, Technology and Clinical Applications."

Few dispute the value of easy access by warranted professionals to medical records or of having quality X-rays, ultrasounds or other test results available to specialists, especially in response to acute cases in remote clinical settings understaffed by medical personnel. On the other hand, few would supplant the necessity for having personal contact with patients. While the latter will not likely occur, the former has arrived, or at least is within its initial stages of use and acceptance.

"There is no question that telemedicine is an issue important in the '90s and will continue to be so in the 21st century because of the increasing use of telecommunications in providing medical care," says Frank Urban, MD, State Representative from Brookfield, who is introducing legislation concerning credentialing and licensure of physicians who consult via telecommunication in Wisconsin.

"And, as the ability to transfer data and the resolution of images continues to improve, they will be used increasingly in consultation and diagnosis. This does not just raise issues of professional competence, but also the problem of professional liability, confidentiality of medical records, and also of reimbursement," Urban said.

Competence, liability, reimbursement: three items likely to get the attention of just about any medical provider today. Those who have at least attempted to analyze advances in the telemedicine field and have prepared strategies for evaluating emerging components have a chance to appropriately implement aspects that best suit their needs and those of their patients. Those who have not, run the risk of playing catch-up on a fast track that is progressing at an ever-quicken pace.

"There is no question that telemedicine is an issue important in the '90s and will continue to be so in the 21st century because of the increasing use of telecommunications in providing medical care."

— Frank Urban, MD

Teleconferencing: Shrinking the Wide Open Spaces

For a major medical center in north central Wisconsin, the prospect of holding board meetings with members sprinkled over hundreds of miles at several satellite clinics posed a logistical nightmare. But thanks to advances in communications technology, developing a televideo-conference link between the main center and outlying affiliates has eliminated worries of gathering a quorum.

"Due to the unique governance structure, with hundreds of doctors throughout the state, holding administrative meetings is cumbersome," says Jack Geller, PhD, Director of the Center for Health Services Research at Marshfield Clinic.

"With the 'hub and spoke' arrangement between the main campus and secondary and tertiary care centers spread over a large geographic area, it was natural to hook them all up electronically, to use telecommunications. Our larger sites — Rice Lake, Minocqua, Wausau — made the economic commitment to interactive video several years ago," Geller stated.

To Geller, the obvious advantages did not stop with board meetings. "It's natural to expand these services for education as well as clinical applications. Some of this was already going on. We were hooked-up well for a computer network, with an extensive e-mail system that touches every center and physician. We've ensured that the lines are secure, so we can send records privately. We have the opportunity to move significant patient information across the system."

Telemedicine is Just Medicine

Aurora Health Care of Milwaukee offers a good example of a health care provider that has re-engineered its operations concerning telemedicine.

"We've been going through a reorganization this year," said Michael Gorczynski, DO, Director of Medical Informatics at Aurora, and member of the SMS Governmental Affairs Commission.

"We've changed some of the emphasis on telemedicine, and defined goals and objectives. Therefore, we diluted some of the

effort and emphasized other areas."

Through this effort, he says, Aurora defined four areas of telemedicine important to their operations:

- Continuing Medical Education
- Administrative video-conferencing
- Teleradiology
- Telediagnosis and teleconsultation

The primary emphasis concerning telemedicine for Aurora at this point is exchanging medical records.

"Just having good medical records rapidly accessible is good for medical care," says Gorczynski. "I spend 85% of my time on improving computer-based patient records; how we can incorporate this within the paradigm of telemedicine and better patient care."

Though he admits that among professionals and the public, teleconsultation and telediagnosis are the "sexiest" aspects of telemedicine, its role, its potential and its acceptance remains the most elusive.

"Frankly, this component is not the highest on our telemedicine list," says Gorczynski. "I believe there are real benefits of it. However, getting it going, getting the buy-in and commitment, especially by providers, has been difficult."

"There isn't a good definition of exactly what it is right now. Theoretically, it would encompass having a doctor or health provider on both ends, and a patient. Perhaps a primary care specialist on one end with the patient, zapping information to a specialist on the other, using live video/audio across the phone lines to accomplish that clinical encounter."

"It's an area in medicine that makes sense. We are looking at this now, to see how we can provide services to patients in areas [where] we have limited expertise within the system, then spin it out to larger geographic area. I believe it will make financial sense, and can be self-supporting. We are not that far into it yet."

"There will be a cost savings in the long run, and the potential for better medical care. I think eventually, it will end up being a viable product, despite capital start-up costs. The question is, can we pay for it operationally now?"

Gorczynski related his conversation with the keynote speaker at a telemedicine conference in Nashville. "He told me over a cup of coffee that he's moving away from the term 'telemedicine.' He's just calling it medicine. I mean, we've always used the phone before. We didn't call it 'phone medicine.' I'd call my friend, a specialist in another city, for an opinion; if necessary, then I'd send information, say a chart, for further review in the mail. It might take a few days."

"Telemedicine is same way, it's just real-time information. Sure, it's very sexy, with images from the space shuttle, and Desert Storm, but there is a lot of information we exchange that doesn't have to be immediate."

He refers to this as "store and forward" or "asynchronous" information exchange that is routinely done today. "We can create a package of information on a patient — audio, video clips, copies of EKGs and other tests — and send it to a specialist who can view it at his or her convenience a few hours later. It's a form of fancy e-mail, really."

That's the opinion of Ed Korlesky, the Audio-Visual Director at the Marshfield Clinic.

"If two medical centers talk to each other, whether it's video-conferencing for board meetings, seminars, CME, etc., I see it as telemedicine. In a broad sense, we've been into it for 20 years or so, since we began doing remote pacemaker checks in 1975. Patients had a device at home that allowed a physician in Marshfield to make sure it was working properly."

"Today, we can send a cardiology echo ultrasound from one specialist to another, and it gets reviewed in a couple of hours," said Korlesky.

One of the most extensive uses of telecommunications between Marshfield and distant sites is in roundtable discussions on specific medical topics, such as the weekly Tumor Conference.

"Specialists from all of our regional centers are involved," said Korlesky, "surgeons, radiotherapists, pathologists, oncologists, etc. They discuss unusual cancers, how best to treat them. We've been doing this type of interactive video-conferencing for about five years, and not just for cancer. We provide services for six or seven specialties regularly, such as neurology and nephrology. Once a month, we link pediatrics with UW Children's Hospital in Madison."

One Good Application Deserves Another

By extrapolating conventional methods of exchanging information electronically, some health care clinicians have quickly identified potential ways to use new technology to improve their abilities to serve their patients.

"When I arrived here about a year ago, I saw many additional opportunities considering the way things were networked here so well," said Geller of Marshfield and its satellites.

"Can't we use it for clinical reasons, and save patients time, effort and money? To a great extent, it was happening already, for example, in radiation oncology. They exchange images from, say, the hospital in Rhinelander. The radiotherapist reviews the images from the hospital on new patients, and vice versa. It serves as a quality assurance check as well," said Geller.

Geller added that computerized laboratory test results can be accessible long-distance as well. "Someone goes in for a lab test; as soon as it's done, the results are entered into a computer, and the primary physician back home, say 100 miles away, sitting there with a laptop can pull them up."

North Carolina has developed an extensive telemedicine network, serving a primarily rural audience called REACH TV (Rural Eastern Carolina Health Network) which has already helped 31 physicians at 12 sites conduct more than 1,900 consultations as reported in the December 1997 edition of the *North Carolina Medical Journal*. As noted in the article *Next Generation Telemedicine: The Future is Now*,

Sitting at the School of Medicine, physicians can discuss clinical problems with physicians and patients at any of the 12 remote sites where a physician or a specially-trained nurse aids in presenting the patient to the consultant across the network — for example, providing vital signs or an evaluation of the precordial and peripheral pulses for cardiology consultations. Then, the nurse places an electronic stethoscope to transmit auscultatory findings (a volume control adds to the utility of the auscultation.) The consultant may use an ophthalmoscope, otoscope, dermoscope or even ultrasound — these images are transmitted as real time motion video at 30 frames per second.

This has improved access to care for rural patients, says the author, citing 60 pediatric cardiology patients consultations and more than 700 dermatology consultations completed.

The article cites various benefits:

- greater access to specialists for patients without having to travel great distances;
- residents from the medical school at East Carolina University who participate in the Rural Residency Program can still live in rural communities and continue to have access to tertiary care consultants;
- clinics and hospitals can increase on-site educational

Technical innovations in the ability to copy and store information digitally or scan it into CD-ROM format are allowing medical centers to exchange images rapidly and store and retrieve records more efficiently and rapidly.

programs for health care while limiting travel expenses;

- minimal disruption for patients and staff;
- lightly staffed rural clinics don't have to worry about paying for back up when provider attends CME seminars.

Many other states are also developing programs for education, consultation and further uses of

telemedicine. Wisconsin health care providers are continuing to experiment with applying such technology in delivering long-distance health care.

"We've developed an exciting new program at Marshfield the past year or two," said Geller, "called 'Proactive Health Services.' It started out as a 1-800 phone line that patients used for advice, with trained nurses on the other end.

"Now, the director, Michael Hillman, MD, is taking the next steps, using telephone and computer databases to offer more than phone triage," said Geller. He explained that Hillman and the staff at Proactive Health Services are creating a plan for chronic disease management, to help avoid unneeded visits and hospitalizations by staying in contact with patients at home with potential problems, such as diabetes.

Saving Space and Time

Technical innovations in the ability to copy and store information digitally or scan it into CD-ROM format are allowing medical centers to exchange images rapidly and store and retrieve records more efficiently and rapidly.

"We are moving away from a film environment concerning radiology," said Geller. "Eventually we will be able to send the image anywhere in the system. Of course, you need a radiologist to see the originals, making the definitive call, but if you as the referring physician want to see it, with the digital environment, you may not need film, just move it to the desktop of the doctor."

Korlesky concurred that this is in the offing at Marshfield. "We are looking to get into teleradiology in the next calendar year," he said. "There are several different ways to transmit films, but our



radiologists are leery of getting anything but the best. With the potential for misreads or liability, we need something as good as having film in hand. The best systems are pricey, but they have to be able to detect subtle things, which requires good resolution."

One of the aspects of telemedicine that may be able to pay for itself is in information storage. "The amount of space, and time and effort and money spent to store medical records is incredible," said Geller. "You can end up with an expensive, cavernous depository or information that is not always easy to find. But, now we can archive digital images in electronic and magnetic formats, so we no longer need to keep these arrays of rows of file cabinets. You can retrieve the records more easily and efficiently, as well as save money."

The "Sexy" Part of Telemedicine

Possibly the least employed aspect of telemedicine currently may be the most appealing: the potential for consulting and diagnosing over distance using interactive video and advanced methods of obtaining and transmitting medical data immediately.

"At Marshfield, we are looking at branching out at this high-end, 'sexy' segment of telemedicine, in particular, teleconsultation," said Geller.

He noted that satellite clinics at places such as Ladysmith, Park Falls and other sites are increasing their capacity to telecommunicate to make such specialized consultations possible. The driving force behind this application of technology is to increase effectiveness in reaching patients, and to decrease their need to drive all the way to Marshfield for relatively simple follow-up care.

"If possible, we don't want patients to have to leave their home community," Geller added. "This is especially true for secondary follow-up visits, even for a cardiologist or dermatologist. We already know what's wrong; so we don't need diagnosis, but we do need to assess the patient's progress. If people have to drive 100 miles, they will need to get a half-day or whole day off work.

Plus, the winter driving up here can be hazardous. It seems like in the 1990s on the verge of a new millennium, we should be able to transcend time and space for clinical follow-up work."

Indeed, they are attempting just that.

"We are now in the process of creating a clinic-wide telemedicine committee to develop a strategic plan for the whole Marshfield extended system for the next three to five years. We are looking at what types of investments we need to make, how we develop the system, document economic benefits."

Geller added that one department, Proactive Health Services under Dr. Hillman, has initiated much of this effort. Hillman's group has been awarded a \$1.4 million federal Public Health Service grant from the Office of Rural Health Policy to look at benefits and barriers to telemedicine and how to overcome them.

"Physicians and patients are not automatically sold on this new telemedicine approach," said Geller. "We still have to give people a choice. A patient can do a telemedicine consultation if they like. But if they really want to come into Marshfield or Minocqua and see the physician personally, they need to be able to have that choice."

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Telemedicine: Promising Tool or Pandora's Box?

By Marc Kennedy, Special to WMJ

As with the advent of any new technology with wide-ranging applications, acceptance will come in fits and starts. Some technophiles will haphazardly bound ahead, convinced that embracing high-tech and novel ideas is de facto a better way to practice medicine; others will stagnate in a cul-de-sac of inaction, leery of capital expenditures and acquiring equipment and procedures yet unproved, and for which reimbursement is not guaranteed. But most will fall somewhere between the two poles, and most believe the only way to actually know in just what part of this spectrum their medical organization should fall is to formally assess the pros and cons of any innovation.

The companion article, *Telemedicine: Brave New World or Back to the Future?* (see page 21) primarily accentuated the potential benefits of telemedicine. Here, we will examine some of the caveats, questions and considerations.

Credentialing and Licensure

Frank Urban, MD, State Representative, is interested in telemedicine as both a physician and a state representative. He will introduce a bill early in 1998 to address the issues of credentialing and licensure for practicing telemedicine.

"First, we need to ask if credentialing is a federal issue or should states handle it? It should be up to states, so it's appropriate that states regulate it," said Urban. "The Federation of

Medical Examining Boards has developed model legislation, which we are considering in our bill in dealing with this situation.

"The draft bill proposes creating a new classification called a 'non-resident physician consultant.' This person holds license to practice non-resident medicine as stipulated by the board. This license is limited to providing consultation to physicians who are registered in this state. Under this license, an out-of-state physician can consult based on information transmission, for example, X-rays, laboratory data, etc. However, the primary responsibility for patients is with a physician who is licensed in Wisconsin."

The proposed law also provides that the individual holder of this non-resident license — which would be renewed biennially — shall annually submit to the board that he or she has professional medical liability insurance.

"To an extent, these types of consultations have obviously been in operation for many years, but they are becoming more frequent," added Urban, "with increasing resolution and definition of video images, you are providing for everything from videoteleconferencing to assisting in diagnosis."

Urban emphasized that the law is not intended to stifle the growth of telemedicine; it's merely to ensure that clinicians are competent and responsible to their Wisconsin patients. He says legislators are concerned that

there was a lack of accountability by out-of-state physicians, but he praises the potential cost-cutting benefits and patient services offered by telemedicine.

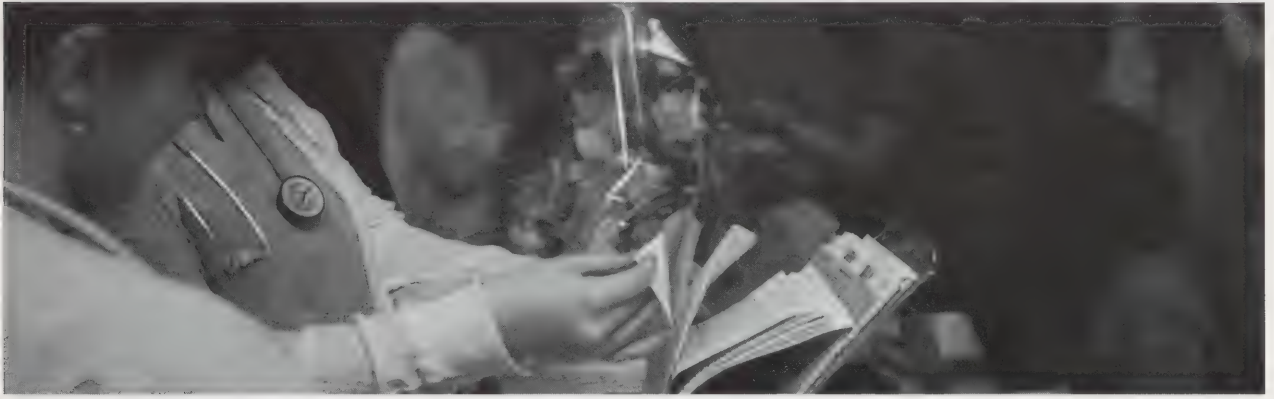
"I don't want telemedicine to be seen as a negative. It can cut costs of sharing medical records and in diagnostic procedures, and can increase the availability of expert medical opinions to areas of limited service," said Urban. "Also, it can cut costs to the state concerning patients in correctional institutions. An inmate in Waupun would have to come to Madison for consultation not available there. This requires travel for the inmate and security. Telecommunication could save these costs."

Several other states, such as Colorado, have enacted similar legislation. Recent California law stipulates that physicians in that state practicing telemedicine must meet the legal licensing requirements in any locale in which they are consulting. Kansas law stipulates full licensure for telemedicine consultations in that state.

"I don't know how this issue will be resolved," said Jack Geller, PhD, Director of the Center for Health Services Research at Marshfield Clinic.

"I know the MEB and legislators are dealing with this. We don't know all answers; maybe right now isn't the time to try solve it, to legislate it."

Though medical clinicians near borders with other states commonly hold dual licenses, most health care systems tend to



operate intrastate. "I don't think this has become much of an issue yet. I imagine the majority of doctors probably haven't even thought about it."

Competition

Michael Gorczynski, DO, of Aurora Health Care said Wisconsin physicians may face competition in the future from groups elsewhere that specialize in telemedicine consultation.

"There is a little concern that doctors, say, from Chicago, may want to enter our market. For pathology and teleradiology, they are providing services by reviewing pictures. I mean, you can look at a slide anywhere."

Geller takes the scenario a step further.

"What about sending images to a radiology group out of Miami if they're doing it cheaper?" he said. "Is it reasonable to send them to Paris? It really doesn't matter if you are reading an X-ray across the hall or 100 miles away, as long as the resolution is the same. I don't know how this is going to shake out. It may break up regional health care systems now that we can transcend time and space."

Reimbursement

"In the eyes of third party insurers, there is no evidence that telemedicine is as good as face-to-face contact," said Dr. Gorczynski. "However, it may be

better than no encounter at all. How much different is it for a dermatologist to see a patient in person than on a computer screen? It's probably better face-to-face, considering lighting, having a three-dimensional perspective. But is it good enough to make it a viable alternative to actually being there with a patient?"

Or, for that matter, is it insufficient enough to deny coverage for a telemedicine visit, particularly if there is little practical alternative? Parameters for these issues need to be established before insurers will likely consider covering such consultations.

However, Medicare has just created an opening that may be the harbinger of greater coverage to come.

"We are excited that Medicare will begin paying for telemedicine encounters in January 1998 that occur in designated Health Care Professional Shortage Areas," said Gorczynski, "This covers some 20- to 30-million people nationally. There are some areas in Milwaukee, as well as in many areas of Wisconsin."

(For more information, check the Web site <http://www.bphc.hrsa.dhhs.gov/hpsa>.)

"It's [reimbursement] already happening to an extent," said Geller. "Medicare already reimburses for teleradiology. As long as the image is read and transmitted with equipment and resolu-

tion according to the standards of the American College of Radiology, it is a reimbursable service. This is a rare exception at this point. But as Medicare starts moving toward reimbursement, so will private insurers."

One aspect will likely determine the extent that telemedicine is a cost-effective tool, according to Geller: the impact of managed care and capitated payments.

Geller added that the prospect for acceptance or rejection of telemedicine is especially pertinent in Wisconsin when considering the amount of patients enrolled in managed care plans. "Wisconsin has one of the highest HMO rural enrollments in capitated plans in the country, at about 30%. If telemedicine proves practical in rural Wisconsin, and is profitable, that's another barrier down. The HMOs just have to develop policies to allow it."

Geller sees Medicare as the gatekeeper at this point. "To Medicare, it's a Pandora's Box. They are a little hesitant to lift the lid. Say I'm seeing a patient, and want the opinion of a cardiologist. I pick up the phone, call the cardiologist, and say 'here are the parameters what do you think?' Is that a reimbursable event? Medicare says 'no, it's a phone call.' What happens if we have same conversation via videoteleconference? Medicare says, 'it's just a fancy phone call.'"

But things are likely to change since Medicare has been directed by Congress to establish standards for telemedicine reimbursement.

"However, if we see capitated systems dominate, lots of this pressure will dissipate," said Geller. "Reimbursement won't make a difference in this case; it's all part of the premium. The whole interplay of the dynamics and incentives is interesting concerning telemedicine. It will flourish if it is efficient and will die if not."

Public and Physician Acceptance

Much of the reticence toward the prospects of using telemedicine comes not from patients, but from physicians. "Much of the

initial approach by doctors is reluctance, not 'gee whiz,'" said Geller. "Most say, 'well, that is pretty neat, but I can't do what I do over TV. I have to see people, touch them. Talk with them personally.'

"Well, I tell them, no one is saying you can't or shouldn't. We're not saying that physicians should do everything electronically. But rather, we're asking them to take a look at everything they do, consider the capabilities and merits of telemedicine, then think about what they can do."

In the 1950s the notion of "cultural lag" was introduced, said Geller. "Cultural lag meant that industry and technology never move together. First we discover or invent something, then we develop the rules and

policies and social reactions to dealing with the technology. But by the time we do that, technology has already moved beyond.

"For example, take computers. Creators of the personal computer never imagined the emergence of hackers. Now we have the Internet here, with First Amendment issues and all the rest.

"By the time we nail that down, technology will have moved on again. It's true in life and in medicine. Sure, we're going to try to get a handle on telemedicine, but by that time, the next wave of technology will hit medicine, and we'll once again feel woefully behind. But, in the end, that's OK. Life wouldn't be any fun without a little uncertainty.

Computers and Medical School: A Healthy Combination

by Steve Busalacchi, Contributing Editor

Charles E. Kahn, Jr., MD, likes to tell people he's a 14th-year medical student. It's his way of saying that the practice of medicine is a life-long learning experience. And he's convinced that technology can make that experience a lot more productive.

Kahn was recently named associate dean and medical director of clinical informatics at the Medical College of Wisconsin, in Milwaukee. Clinical informatics is an area that focuses on the use of electronic information systems to improve patient care.

"The idea is not to computerize medicine. It's to use what the computer does best," Kahn explained. For instance, a computer can check how long it's

been since the patient had a blood test, or it can automatically flag a new prescription that should not be combined with a medication the patient is already taking.

"These tools empower physicians. They give us time to spend with patients," Kahn said. So ultimately, it's the patients who benefit from these advances, according to Kahn.

Technology and Education

Medical students also benefit from the technology. "Computers are a crucial tool," said Natasha R. Pankratz, a second-year medical student at the University of Wisconsin Medical School.

"Your knowledge base explodes because it's not your

school's library any more. It's everybody's," said an enthusiastic Pankratz. "It's not just your patient anymore, it's potentially anybody's patient base. You can share your experiences if you want to, with of course, the patient's permission." (Pankratz shared her experiences, after responding to an e-mail message asking UW Medical School students if they'd be willing to be interviewed for this article.)

Through computer technology called evidence-based medicine, today's medical students are learning new ways to diagnose and treat illnesses. It involves the use of large databases and statistical models to help judge whether

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Marshfield Wins Grant to Study Telemedicine

By Marc Kennedy, Special to WMJ

The Marshfield Clinic has won a federal grant from the Office of Rural Health Policy to study the effectiveness of telemedicine in serving rural satellite clinics. It was one of a dozen sites around the country to qualify.

"We are charged with examining which telemedicine tools can be used to improve access of medical services to rural patients," said Michael Hillman, MD, neurologist and Director of the Department of Proactive Health Services that will be conducting the studies involved in the \$1.4 million grant. "We are also evaluating the costs, feasibility and acceptance of telemedicine by patients and practitioners. We are now in the process of setting up the timetable."

Hillman and his team will develop and evaluate standards for seven services, including teleradiology and emergent stabilization.

"Because of the nature of rural medicine, emergency rooms play an important role. We will be working with the ERs at Rusk County Memorial Hospital and in Flambeau to help us determine what type of advice and consultation works best for them, for example, in determining whether a patient should be transferred to a tertiary care site. We'll be looking at what works best administratively and technologically."

Hillman and his staff at Proactive Health Services have experience reaching out to their patients. They had run telephone help lines, then sought to broaden the concept to include disease state medicine and patient education.

"Our proposal to the feds was basically that there is a need, there is a lot of telemedicine technology available here and at the other clinics, but the utility, how it was being used, was in question."

One of the questions Hillman and his staff — Marilyn Follen,

RN, MS, and program manager Nina Antonoitti, RN, MBA, will try to answer is why acceptance to telemedicine is not greater even though the technology exists.

"We hypothesize that the reason for unsatisfactory acceptance up until now is that the electronic infrastructure is there but the cultural infrastructure is not," said Hillman. "So part of our effort will be to see what type of education or information or organization would help lead to acceptance."

"If people believe that the only way to deliver health care is through one-on-one interaction with a doctor, how do you go about changing this belief system?"

Hillman said that the idea is also to look at patients over their entire life span, not to just use telemedicine to treat emergencies. Another major component is developing a comprehensive business plan to make the system economically feasible and sustainable.

"One of the things I'm proud of was that we went to the communities and asked what they needed medically," said Hillman. "We targeted under-served areas and performed a community health care needs assessment. Surprisingly, one of the biggest issues was occupational medical services. There are many small companies, with 30 to 40 employees in our area, that are concerned about work-related injuries."

"Also, we found that immunization services are important. Since we are already involved with an immunization tracking program, we are planning on expanding that through the grant services. For example, we find a child who has not been immunized, then send a letter. We track to see if that has happened. If not, then a nurse will call to assess the situation, then help convince the parents of the importance of getting vaccinated. If that doesn't work, then we

send a public health nurse to the home."

One of the major focuses of the study will be to track the costs of care.

"We will be assessing the utilization of services by patients in these areas," said Hillman. "There are many follow-up returns to clinic, for example, in oncology — post-diagnosis and initial treatment. For many patients, it won't be necessary for them to drive all the way into the primary oncology clinic if there are no specific problems. We will be looking at the charges regarding level of services of oncology follow-ups. This will help us determine if some type of telemedicine intervention would suffice in many cases. This would decrease patient travel time, and given some of the winter weather we have up here, that is not a small factor."

He added that they will also track mental health care, and develop means of using telemedicine to help determine whether patients are having medication or other problems.

"This is not an attempt to supplant interpersonal contact," said Hillman. "There are many circumstances in which telemedicine would not be appropriate. But in many situations, it can be a win-win for everyone. The purpose of the grant is to identify which situations are indeed win-win, and how to decide which technology best allows us to meet that need."

For more information:

Telemedicine Research Center's home page (<http://telemed.org>)
Cardiovascular Medical Group's home page which explains limitations and disclaimers for on-line case reviews (<http://www.cvmg.com>.)

For designated Health Care Professional Shortage Areas (<http://www.bphc.hrsa.dhhs.gov/hpsa>.)

a patient's symptoms are likely to be relieved by a particular therapy. Punch in the information, and the computer model looks at how other patients responded. "If somebody presents with certain symptoms, a rash, that sort of thing, these may be put into the database," according to Mark A. Albanese, PhD, director of medical education, research and development at UW Medical School. "It's the hottest new area — probably the single most common innovation."

The concept of evidence-based medicine was developed about 20 years ago, according to Albanese, because most medical experts decided it wasn't wise to rely solely on an individual sense of what was happening to the patient. Now, with more powerful computers, doctors can learn about the experiences of many other patients by simply tapping into a database.

Albanese cautioned that it can be difficult to apply an individual patient's experience to other patients because each case is different. But, he said, there are doctors who've become quite good at using the information to help them make the best treatment call. Albanese estimates that 5% to 10% of clinicians use computer databases in this way.

Although this technology promises to become an increasingly common tool for physicians, Albanese noted that it is still in the development stage.

Doctor Kahn, of the Medical College of Wisconsin, is also excited about the prospects of improving patient care in this manner. "Does a new medicine work, or just in a subset of patients?" he asked. He said the emphasis in medicine today is on results, so doctors should be especially interested in this use of

technology. Kahn is convinced that computers can improve patient outcomes, whether they're used to search a large database or simply view an individual's personal medical history on a computer screen.

As every physician knows, waiting for a patient's thick stack of medical records to get transferred from office to office is time-consuming and inefficient for both doctor and patient. "This way," Kahn noted, "three people can access the information at the same time and look at different aspects of it." That



means more timely care for the patient.

Patients also benefit when doctors are able to keep up-to-date on the very latest medical advances.

"Let's say you have a patient with an ulcer," offered medical student Pankratz. "You can go to your computer and access Medline [available through WISMED at <http://www.wismed.com>]...and type in 'ulcer.' And you can get a whole bunch of articles from a number of different journals over the past year about ulcers."

Pankratz says a library just can't compete because computer-generated information is easier to access and is more complete.

But the time it takes to get the machines to work may well determine how much use physicians will make of them. "There's a real short window," said Mark Albanese. Medical students and everybody else can become

quickly frustrated if, for example, it takes too long to download information from the Internet.

Brave, New Instruction

Besides the technical annoyances, Albanese fears the training of new doctors could suffer if it becomes too impersonal. He abhors the possibility that one day "medical students will be in a lab, devoid of human contact for four years, only seeing cyber patients. It could be very isolating."

But Albanese does not consider that an immediate threat. On a 0-10 scale of how far medicine has come on the technological continuum, Albanese said medical schools haven't even hit 1 yet.

Pankratz isn't overly concerned, either. The up-side of the technology is simply too beneficial to contemplate living without it, she said. Internet Web sites help Pankratz study anatomy without having to be in a lab, quiz herself on pathological signs and offer a convenient way to continually review things she's learned.

"Virtual learning materials are extremely important for review. No, it's not a replacement, but it is an awfully good addition. I don't think anyone could go to medical school just by computer."

But these new tools don't always make teaching easier. Earlier this year, the UW Medical School experimented with two-way TV link-ups at several sites around the state.

"It changes how you teach," said Albanese. "You really have to think how this will work for the distance students. People on site grab your attention first."

Such challenges aren't stopping the UW Medical School from moving forward, however. A state-of-the-art, multi-million dollar health sciences learning center is scheduled to open in

2002, completely wired for computer access and distance learning.

The Medical College of Wisconsin's Doctor Kahn predicts growing interest among medical schools to incorporate technology into the instruction. The medical director of clinical informatics said just the fact that more

medical schools have created positions like his show that education leaders realize the importance of getting doctors plugged into these innovations.

Natacha Pankratz feels that the sooner the medical community fully embraces new technologies, the sooner the patients will realize the benefits. "The world

is our hospital and the world is our library. You can only really benefit from that, as long as we're ethical, as we access and distribute information."

Pankratz and Dr. Kahn are on the same Web page. No wonder he considers himself a 14th-year medical student.

On-line Medicine: World Wide Web Changes the Way Physicians and Patients Interact

by Melissa LaRocque, Contributing Editor

"Telemedicine is the use of medical information exchanged from one site to another via electronic communications for the health and education of the patient or health care provider and for the purpose of improving patient care." [American Telemedicine Association (www.atmeda.org)]

When you hear this definition of telemedicine, you may think of a physician in one part of the country consulting with a physician or patient in another part of the country via video conferencing. You may think telemedicine is a tool for physicians and patients in rural areas to exchange information when distance poses a problem. You may think of telemedicine as a tool that will be used in the future as more technology is created.

You would be correct on all counts. What may surprise you, though, is that telemedicine is available on a much smaller scale now and is used every day by both physicians and patients around the U.S. and the world.

Patients Surf for Health Care

As the price of the personal computer continues to fall and as the number of users accessing the Internet and the World Wide Web continues to rise, more and

more people have access to an overwhelming amount of information pertaining to health and wellness including finding or choosing a doctor.

The American Medical Association recently released a redesign of their Web site (www.ama-assoc.org). One of the new areas is called "Information for Consumers, Improve your Health with Easy to Understand, High-Quality Health Information You can Use." This section includes areas such as answers on questions about specific and general health conditions and an interactive health section where a user can answer a few questions and rate their nutritional habits or take a personal interactive weight evaluation.

The redesign of the AMA site also includes a "doctor finder." AMA Physician Select provides information on virtually every licensed physician in the United States and its possessions — more than 650,000. According to the site, all physician credential data has been verified for accuracy and authenticated by accrediting agencies, medical schools, residency training programs, licensing and certifying boards, and other data sources. Users are invited to search for a physician by name or a medical speciality.

Sites containing medical information are popping up on the Web every day. One can go to find information on a certain condition or treatment, read up on medical interests, buy products, or even visit a "cyberspace telemedical office" (<http://www.telemedical.com/~drcarr/>).

Some physicians are taking the AMA doctor finder a step further and creating their own Web sites. These sites are being created by physicians for a number of reasons including attracting new patients, sharing information or providing better care and service.

Some physicians are using technology to keep in touch with their patients via e-mail. A recent article in the *New York Times* described e-mail as the "High-Tech House Call for the 90s." The article described how using e-mail has helped physicians stay in contact and answer questions their patients may have. "E-mail, whose blend of efficiency and intimacy has made it such a standard medium of talk in this electronic age, is becoming a tool to bring back some of the comforting and hand holding that went out with the house call," the article stated.

There are risks and a potential for abuse with on-line medical sites. Unlike printing which

poses expense and time constraints, anyone with a computer and a modem can put information out on the Web. There have been cases of deceptive claims or "miracle cures" found on some sites. However, according to the physicians we spoke to, the benefits of on-line medicine outweigh the risks. When "surfing" for information on the web, it is vitally important to be discriminating.

Physicians Find Web Useful Tool

In addition to the Web becoming a useful tool for patients who wish to take a more active role in their health care, the Web has, or should, become an integral part of a physician's practice. Once on the Web, a physician can access virtually any research information posted in medical journals by a click of the mouse.

The redesign of the AMA Web site includes a section devoted exclusively to medical journals and news, featuring "The latest medical research and news from *JAMA* and other world-class scientific information sources."

The Web hosts a vast array of information for physicians that can at times seem overwhelming. The SMS takes pride in helping Wisconsin physicians sift through the information using WISMED (www.wismed.com). In addition to keeping physicians up to date regarding medical, political or Society issues, WISMED offers links to dozens of other specialty, state and county medical societies in the U.S. and the world. WISMED also offers links to both discussion and newsgroups where a physician can post e-mail questions or carry on real-time discussions with physician colleagues, by specialty or subject matter.

Sandra L. Osborn, MD, SMS President, discussed technology and its benefits at length during her Presidential Inaugural Address and continues to promote the

"E-mail, whose blend of efficiency and intimacy has made it such a standard medium of talk in this electronic age, is becoming a tool to bring back some of the comforting and hand holding that went out with the house call."

—New York Times

advantages of getting onto the Information Superhighway. Doctor Osborn recognizes the benefits that technology holds for the health care profession and urges her colleagues to embrace the possibilities that the new tools hold.

As she told members last spring, "Telemedicine, the Internet and the World Wide Web are dramatically changing the way information is delivered to doctors. The computer is here and we'd better log on."

Note: the SMS is beginning plans for a redesign of WISMED (www.wismed.com). We are going to update the look of the site and create an environment for users to access new information easily. If you have any comments or suggestions for the redesign, please contact Melissa LaRocque at SMS extension 353 or via e-mail at: MELISSAL@smswi.org.

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Report of the AMA Council on Medical Service to the AMA House of Delegates

At the 1996 Interim Meeting, the House of Delegates adopted Resolution 117 (I-96), the fifth resolve of which directed the American Medical Association (AMA) to monitor activity by hospitals, specialty societies, and regulatory agencies which affects the practice of telemedicine and submit a report to the House of Delegates at the 1997 Interim Meeting.

"Telemedicine" generally refers to the provision of health care consultation and education using telecommunication networks to communicate information. Physicians, hospitals, and medical schools have been exploring the uses of telemedicine since 1964. A number of issues in telemedicine have been previously addressed in a series of joint reports to the House of Delegates by the Council on Medical Service and the Council on Medical Education (Policies H-480.974, H-480.969, and H-160.937, AMA Policy Compendium).

This report, which is presented for the information of the House, provides an update on the use of telemedicine by hospitals and other institutional delivery systems, describes current medical specialty society activities in telemedicine, and presents the major areas of federal legislative or regulatory activity with respect to telemedicine.

Hospitals and Other Institutional Delivery Settings

There are several arenas in which telemedicine plays a role in

hospitals. In fact, hospitals are increasingly functioning as telemedicine "hubs" while treatment is conducted in some remote location. The Council's review of available information regarding telemedicine in hospitals and other institutional delivery settings indicates that this technology is being utilized from the battlefield to the home. Several universities are also involved in projects designed to link urban-area physicians with remote rural areas in their respective states. The following information provides examples of the use of telemedicine in the various remote locations.

One key area of telemedicine applications is for the delivery of trauma care in the battlefield. For example, the health care system in a battlefield situation demands timely and efficient evaluation, development, and implementation of a treatment plan for severely traumatized patients. This is a process that has been effectively utilized by the various branches of the armed forces and has applications for civilians, as well.

The use of digital compression to send high-quality video images from rural areas to urban hospitals for diagnosis has been used to bring specialized care to rural America. Packets of information, such as patient records, X-rays, or pathology slides, can be sent over the telecommunications link to be stored digitally for review by a specialist. World Wide Web technology can also be utilized

without the necessity for real-time video conferencing. These data can be simple text, primary care physician's notes on an initial examination, or contain high-resolution images from CT or MRI scans. In addition to interactive videoconferencing, which allows the patient and doctor to see and hear each other, new devices let physicians listen to a patient's heart, take blood pressure readings, and otherwise thoroughly examine a patient without actual physical contact. Once the capability exists to display registered images at the remote site, an expert can guide a physician at a remote facility by manipulating the graphics that appear on the screen.

A potentially cost-effective trend is to use telemedicine to treat more patients at home rather than in a hospital. A project by Carnegie Mellon University has combined wireless data communication and laptop computers to help nurses provide care at patients' homes. The system allows nurses to receive physicians' orders, chart patients' progress, review medical reference books, and even show educational videos to patients. Such systems allow trained medical personnel to provide home monitoring and also allow patient self-monitoring. A recent study at the University of Minnesota illustrates the potential of such a system. In an experimental set up, lung transplant patients, who benefit from monthly checkups after surgery, test

themselves, record the results, and transmit the results from their homes. Not only may costs be decreased, but daily tests of blood pressure and "best blows" into a spirometer could help detect trends before symptoms indicate a problem. All the measurements were performed daily, stored automatically, and transmitted weekly to a relational database.

The Medical College of Georgia is placing interactive video and medical diagnostic equipment in the homes of "revolving-door" hospital patients suffering from chronic conditions. A telemedicine center and network founded in 1991 has grown to include 59 Georgia hospitals and clinics. According to the Medical College of Georgia, the network has allowed 86% of the patients who would have been transferred out of a rural hospital for specialized care to remain where they are. Another example of home care began with the search for a better way to monitor fetuses with cord entanglement problems. A study was conducted in which the patients were given telemetry/fetal monitoring equipment so that they could perform the monitoring themselves without a nurse. The physician monitored the woman's computer and studied the baby's heart rate and the mother's contractions.

Other specialized telemedicine units are also being developed. For example, a "virtual clinic" at the University of Kansas provides diagnoses and treatment for Parkinson's disease to patients in rural areas, many of whom might otherwise go untreated. Another example is the monthly "tumor board" meeting of the Carolina Medical Center in Charlotte, NC, and the Watauga Medical Center in Boone, NC. The team of oncologists, pathologists, and radiologists reviews the particularly complex cases at Watauga's

cancer center from its specially-equipped telemedicine room at the Carolina Medical Center. The facility has a video camera, communications capability for real-time video transmission, and a 60-inch color monitor. The experts are thus able to interact with the audience of 30 surgeons, chemotherapy specialists, and health support workers in Boone.

Another innovative use of telemedicine is in prisons. East Carolina University is performing telemedicine consultations to the largest prison in North Carolina. Originally established to provide only emergency consultations from trauma cases, this network's usage has expanded to include 31 School of Medicine physicians from 15 medical disciplines. Physicians see and talk to the patients via the telemedicine link and then diagnose and prescribe medications when necessary. Practitioners have access to a digital stethoscope, a graphics camera, and a miniature, handheld dermatology camera to aid in patient examinations. The network is being expanded to six rural hospitals and a large naval hospital. A similar telemedicine prison project at the University of Texas, Medical Branch at Galveston, handles 45-65 telemedicine cases per week.

There also has been an increase in the number of regional telemedicine pilot projects. In Iowa, the three main medical institutions are linked over the statewide fiber-optic backbone called the Iowa Communications Network. The network has hosted 10 telepathology consultations using the Roche Image Analysis system, 10 telecardiology sessions, 100 echocardiology cases, and 250 non-invasive vascular imaging transmissions. The Eastern Montana Telemedicine Network's videoconferencing pilot has had a 95% success rate reported in its first year of operation (i.e., rural

nurses and doctors successfully treated patients who would have been referred to a specialist). Cleveland Memorial Hospital in Shelby, NC, operates one of the busiest emergency rooms in the state. Telemedicine is used to improve the operating efficiency of this busy trauma center. Because of the costs involved, the Oklahoma Telemedicine Network, which will ultimately connect 45 rural hospitals in the state, has decided not to include any videoconferencing in its initial phase. Instead, the prime focus is on the transmission of reports and slides. Finally, the High Plains Rural Health Network is a growing network of providers that covers the "frontier areas" with less than six inhabitants per square mile of northeastern Colorado, northwest Kansas and southwest Nebraska.

Medical Specialty Societies

While extensive information about medical specialty society activity is not currently available, there is much information in the literature regarding applications for telemedicine in the various specialty categories. In particular, there is a great deal of information on categories such as teleradiology, teledermatology, and teleanesthesiology.

For instance, teleradiology is the point-to-point electronic transmission of radiographic images. Teleradiology can often be accomplished by means of slow-scan transmission over regular narrow-band telephone lines, as interactivity is not needed. The question then becomes whether compression to decrease the transmission time can be accomplished without losing diagnostic accuracy. This is the area that has produced the greatest amount of research data in the telemedicine literature.

As previously reported to the House of Delegates, the American College of Radiology (ACR), in conjunction with the medical imaging equipment manufacturers, represented by the National Electrical Manufacturers Association (NEMA), has been active since 1984 in developing a standard that enables interconnection of imaging equipment and exchange of diagnostic images over a standard network. In 1992, the ACR-NEMA standard was transformed into the Digital Imaging and Communications in Medicine (DICOM) standard to reflect the contributions of other international organizations and expansion to support any type of diagnostic or therapeutic image.

Teledermatology is also a widely used method of diagnosis and treatment. Dermatology, with its high reliance on visual diagnostic information and historic use of photographic materials for teaching and communication, represents a logical transition from the technical issues that radiology has done much to resolve to the sociopolitical and regulatory issues associated with moving traditionally face-to-face medical practices to remote consultation. Resolution of technical issues is simplified because dermatologists understand rendering diagnostic opinions from two-dimensional images. Also, digital image files are small enough that transmission over standard telephone lines is possible. As technical solutions are refined, greater effort may be put to solving issues of health care delivery, networking, patient satisfaction, and provider acceptance.

The literature indicates that teleanesthesiology utilizes yet another aspect of telemedicine. Electronic mail (e-mail) in anesthesiology consults has been utilized extensively. Aside from

its low cost and fast message exchange, e-mail offers an opportunity for broad dialogue with national and international colleagues and the ability to archive messages on the practitioner's computer as well as the discussion group's computers (controlled by the discussion list server) for later review or use in research projects.

Regulatory Agencies/Legislation

There are four major current areas of federal legislative or regulatory agency activity with respect to telemedicine:

- Telemedicine provisions in the Balanced Budget Act of 1997;
- Health Care Financing Administration (HCFA) Demonstration Projects;
- Federal Communications Commission (FCC) equipment standards; and
- Food and Drug Administration (FDA) standards development.

In addition to the activity at the federal level, there has been a great deal of action taken by the state legislatures in 1997, which the Council addresses at the end of this section of the report.

Under provisions in the Balanced Budget Act of 1997, Medicare will pay for some telemedicine services. Provisions indicate that not later than January 1, 1999, the Secretary of the Department of Health and Human Services shall make payments for professional consultation via telecommunications systems with a physician or a practitioner furnishing a service for which payment may be made under the Medicare program. The payment shall be shared between the referring physician or practitioner and the consulting physician or practitioner. The amount of such payment shall not be greater

than the current fee schedule of the consulting physician or practitioner for the health care services provided.

The HCFA Office of Research and Demonstrations is also undertaking a three-year demonstration of Medicare payment for telemedicine services. The demonstration focuses primarily on medical consultations involving a primary care physician and a patient located at a remote, rural (spoke) site and a medical specialist (consultant) located at a medical center (hub) facility. The primary care physician seeks advice from the consultant concerning the patient's condition or course of treatment.

HCFA is using its authority to allow provider payment for teleconsulting services delivered to Medicare beneficiaries at 57 Medicare-certified facilities (53 short-term hospitals, a state psychiatric hospital, and three rural health clinics) associated with five telemedicine projects.

Through the demonstration, HCFA will address concerns that certain populations, primarily people in rural areas, have limited access to health care specialists, and that recent advances in telecommunications technology can provide low cost access to medical specialists. The objectives of HCFA's telemedicine payment demonstration are to assess the feasibility, acceptability, cost, and quality of services available through the use of teleconsultation for Medicare beneficiaries. HCFA will also evaluate the effects of such payment on access to service and quality of care. These demonstrations are scheduled for completion in the year 2000.

In May 1997, the FCC adopted new Universal Service rules to improve access to and quality of health care, particularly in rural areas. These rules specifically

allocate up to \$400 million a year to an estimated 12,000 eligible health care providers for the purposes of increasing the interoperability of "telehealth" equipment that could otherwise impede the buildout of vital "telehealth" networks.

In a July 1997 conference on the promotion of standards in "telehealth," FCC representatives indicated that the use of telecommunications services to send health care information and services wherever they are needed offers the great potential to improve access to and quality of health care, particularly in rural areas. They acknowledged, however, the need to work toward a solution to one of the factors inhibiting "telehealth" growth — a lack of sufficient equipment standards that is impeding the interoperability of "telehealth" equipment.

Finally, at the federal level, the FDA Center for Devices and Radiological Health has a vital interest in the development of standards that improve the Center's ability to characterize and evaluate medical devices. This interest applies to equipment standards, process standards (such as for developing software), and efforts to standardize nomenclature, all of which are likely to be vital to the future of telemedicine.

The Center has encouraged collaboration between the manufacturers of diagnostic imaging equipment represented by NEMA, and the clinical community represented by the ACR to develop a standard allowing for the interconnection of diagnostic imaging systems. As discussed in Joint CME/CMS Report (I-96), the ACR/NEMA effort produced a DICOM standard which is widely implemented and serves as the foundation for successful applications.

Nomenclature standardization relevant to telemedicine has also been identified by the FDA as an important issue. Two areas are of prime interest: standardized clinical terminology for use in describing patient events; and standardized conventions and terminology for the naming of devices. Over the past two years, the FDA has been actively involved with the review and development of standardized clinical terminology to describe patient events in the form of a thesaurus for regulatory purposes.

During 1997, there has also been a great deal of state legislative activity in telemedicine. Several bills in Arizona have been introduced regarding telemedicine. One would allocate \$250,000 annually for telemedicine pilot programs. Another outlines the requirements for health care delivery via telemedicine. Two telemedicine bills also have been introduced to amend the Arizona health care cost containment system with regard to telemedicine, and another appropriates \$1.2 million for the University of Arizona Telemedicine Network. Two bills have been introduced in Arkansas. One would appropriate funds for the Department of Computer Services or its successor agency for a statewide distance learning and telemedicine network grants. The other would allocate \$2.5 million in distance learning and telemedicine network grants.

In Georgia, a bill has been introduced to allocate surplus funds to distance learning and telemedicine projects. Legislation has been introduced in Maryland concerning interstate licensing for the purposes of practicing medicine through electronic or other specified means. Two bills also have been introduced in Mississippi. The first would grant health insur-

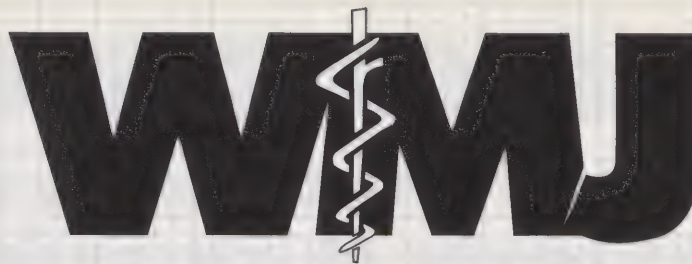
ance coverage for services provided through telemedicine, and the second would require state licensure for delivery of telemedicine services across state lines. In Minnesota, a bill that would provide funding to be used for costs of home telemedicine devices was introduced.

New Mexico has a pending bill making general appropriations and authorizing expenditures by state agencies required by law. The bill makes appropriations for telemedicine projects. In Ohio, a pending bill would require any individual providing medical services in the state, whether directly or through electronic communication, to be licensed by the State Medical Board. And finally, in Texas, a bill was introduced which would allow for the award of grants to further telemedicine initiatives.

Summary

As the information in this report indicates, there continues to be growth in the use of telemedicine in hospitals and other institutional delivery systems, and among certain physician specialties. Interest and oversight in telemedicine among state legislatures and federal regulatory agencies continue to grow, as well. The Council believes that a number of issues in telemedicine will remain of vital importance to the AMA, its members and their patients. As a result, the Council will continue to monitor further developments in telemedicine and report to the House as developments warrant.

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A System of Tele-Oncology at the University of Wisconsin Hospital and Clinics and Regional Oncology Affiliate Institutions

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ABSTRACT

Collaborative associations between academic medical centers and community hospitals can use telemedicine to promote and enhance cancer treatment and clinical research. It is expensive to duplicate communications technology at all sites, but it is possible to share technologies using telemedicine. This paper describes a system in evolution that provides regional oncology services at the University of Wisconsin Hospital and Clinics and regional oncology affiliates. The system requires integrated hardware and software to provide Internet access, videoconferencing, and data transmission. This system is comprised of several forms of technology that promote education and training, continuing medical education, patient evaluation and protocol eligibility, data transfer for radiation therapy treatment planning, and clinical and technologic quality assurance and peer review programs for medical oncology and radiation oncology.

INTRODUCTION

Telemedicine is the application of a diverse collection of technologies that use electronic signals to transfer information from one site to another for the enhancement of clinical practice.^{1,2,3} Collaborative associations between academic medical centers and community hospitals can use telemedicine to promote and enhance cancer treatment and clinical research.⁴ It is expensive to duplicate this technology at all sites, but it is possible to share these technologies using telemedicine. Physicians at community hospitals gain access to state-of-the-art cancer treatment,

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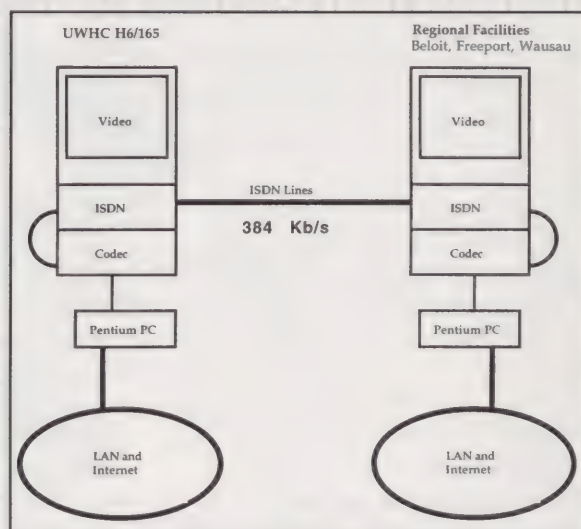


Figure 1. Graphic representation of components and interconnections of a regional oncology telemedicine system.

while providing medical centers with a larger population of patients for clinical trials. The development and operation of regional oncology clinics presents a challenge to medical oncologists, radiation oncologists, medical physicists, nursing, technology staff, and health care administrators of the institutions involved in an integrated project.^{5,6}

It is common for facilities to develop systems that consist of medical consultation videoconferencing and information retrieval via Internet access. However, for an oncology system to be completely integrated, radiation oncology services require a third component – data transmission.^{7,8} This paper describes a system in evolution that provides regional oncology services at the University of Wisconsin Hospital and Clinics (UWHC), Wausau Hospital, Beloit Memorial Hospital, and the Freeport Health Network, Freeport, Illinois. This system is comprised of several forms of technology that promote

education and training, continuing medical education, patient evaluation and protocol eligibility, clinical and technologic quality assurance and a peer review program for medical oncology and radiation oncology. In addition, the system provides data transfer for remote CT-based treatment planning and 3-D treatment planning for radiation oncology, and data transfer for block cutting (Figure 1).

Patient care and clinical research efforts require consultation between the UWHC oncologists and the regional oncology affiliates to share medical expertise, but also to evaluate the complex, detailed protocol eligibility and treatment requirements of investigational protocols. Telephone conferences are limited by the inability to interactively discuss visually oriented clinical data such as radiographs and pathology material.⁹

SYSTEM DESIGN

The UWHC Regional Oncology Project requires integrated hardware and software to provide Internet access, videoconferencing, and data transmission. Internet access must be sufficiently responsive so users do not perceive transmission of graphics as unduly slow. Videoconferencing capability must allow for simultaneous display and annotation of image files by participants at both ends of the videoconference. Practical considerations demand workstation platform at the regional community hospitals that are low-cost and can be maintained by existing staff. A system is only realistic if it is maintainable and cost-effective, particularly from the perspective of the regional community affiliate.

Videoconferencing for the oncology connection to the information superhighway consists of separate components at the UWHC and at each of the regional affiliates. At the UWHC large-monitor equipped interactive multimedia videoconferencing systems designed for team conferencing applications have been selected from VTEL®. This system combines graphical conference-control interface with the Windows 95® operating system. The platform includes a Pentium® processor and dual monitor systems. The PC-based architecture lets team conferencing systems act as ordinary nodes on a network for data and document exchange across a Local Area Network (LAN) or Wide Area Network (WAN) and allows direct access to the Internet. The University videoconferencing systems interfaces each of the regional oncology affiliates. The

regional cancer centers use a VTEL product-FRED®, a "Friendly Roll-about Engineered for Doctors" video workstation designed for hospitals and medical clinics. This is a self-contained, full featured roll-about conferencing system that can be used with stationary workstations.

Integrated Services Digital Network (ISDN) is widely available throughout the region using existing digitally-switched public telephone networks. This service is reasonably priced. ISDN can be switched to any other ISDN system by dialing that systems' number, rather than being limited to a prearranged "point-to-point" line. The University of Wisconsin currently requires three ISDN lines and will require four lines in the future for the regional affiliates. With video compression, a process that encodes data representing an image to reduce data storage space requirements and image processing and transmission times, a two channel ISDN line is capable of at least 12 frames per second video display rates. Video compression provides adequate frame rates over ISDN. Likewise, ISDN can transfer a 512 x 512 pixel CT image uncompressed in about 18 seconds. Graphic files typically found on Internet pages are also transferred at acceptable rates.

The Transmission Control Protocol/Internet Protocol (TCP/IP) access to the World Wide Web (WWW) provides access to medical information concerning clinical trials. The WWW has ease of establishing and maintaining computerized information sources and multiple browsers for various operating systems including UNIX, Microsoft Windows, and Apple System 7. Information to be presented is primarily interrelated text with some images. Text files can be converted to HyperText Markup Language (HTML) used for Internet pages. Internet connectivity with the regional community oncology centers provides them access to a multitude of other information sources around the world. The University of Wisconsin Comprehensive Cancer Center has a homepage (<http://www.biostat.wisc.edu/cancer/homepage.html>) that allows oncologists at the regional oncology centers to obtain information on clinical trials available for their patients.

Picture Archival and Communications Systems (PACS) for radiation oncology presents an entirely different set of constraints and requirements compared with systems developed for diagnostic radiology.¹⁰ PACS in diagnostic radiology is used to reduce film expenses, to provide more efficient storage and retrieval of imaging records and reports, more efficient use of imaging

equipment, faster turn around for imaging diagnoses, consolidation of imaging records with other medical records, and elimination of labor intensive manual systems of archiving and retrieving records. PACS for radiation oncology aids in organizing the complex, interrelated functions of radiation oncology treatment planning and treatment delivery. Simulation, treatment planning, field blocking, set-up, verification and treatment are now all observable and/or controllable from computer systems that can be interfaced with departmental PACS. Compared to diagnostic imaging, the costs are considerably lower because the systems can be based on desktop computers since the image resolution requirements are not as stringent.

PACS is moving away from vendor-specific communications protocols and toward industry standard protocols and formats.¹⁰ The American College of Radiology (ACR) and the National Electrical Manufacturer's Association (NEMA) have been active for 14 years in establishing standards for the electronic connection of medical imaging equipment. The result is a DICOM (Digital Imaging and COmmunications in Medicine) standard, first published in 1985. These standards are available on the ACR-NEMA home page at <http://www.acr.org/standards.html>. The objectives of the DICOM standard are to:

1. Promote communication of digital image information regardless of manufacturer,
2. Facilitate the development and expansion of PACS that can interface with other systems of hospital information, and
3. Allow the creation of diagnostic information databases that can be accessed by a wide variety of devices distributed geographically.

Vendor support of DICOM protocols enable full integration of equipment regardless of manufacturer. For specific radiation therapy applications, the DICOM standards are in the initial review phase. Fully automated systems for handling and evaluating images provide electronic portal imaging, multileaf collimators, and clinical data management systems.

IMPLEMENTATION

Medical Oncology and Radiation Oncology Teleconferencing

A physician or protocol nurse at the regional oncology facility accesses the UWCCC Web site to determine which clinical trials are available for

a patient undergoing oncology evaluation. The Web site lists UWCCC clinical studies by anatomic site and disease process. The eligibility criteria for the study, treatment schema, and consent forms are available on the site. Once a physician has identified a patient as a potential protocol candidate, a video conference can be arranged to discuss the patient's diagnosis and eligibility for protocol treatment. Pertinent X-rays, scans, and pathology slides are shown during the conference.^{11,12,13}

The videoconferencing software provides the framework for establishing the ISDN video-conference link and displaying patient data to be discussed. To use the system, an oncologist assembles a meeting file on the videoconferencing computer at the regional hospital. The file is a collection of text or image files containing patient data, description of the physical examination, pathology, clinical laboratory, and radiology reports. Scanned radiographic films and pathology slides or photographs are prepared. Word processing files of the reports and computer files of CTs or MRIs can be included in meeting files with appropriate conversion and avoid the need for scanning.

When the videoconference call has been established, the conference participants see each other on two small video windows in the corner of the display. Medical reports and images from the meeting file are displayed on the "whiteboard" window. Annotation of anything on the whiteboard is possible using marker pens or keyboard text. The annotation may be made by either participant while the contents of the whiteboard is being continuously updated for both participants.

Radiation Oncology Treatment Planning Data Transmission

Three are steps required to make the connection and to transfer images between the CT scanners and CT/simulators at the regional facilities and the UWHC Radiation Oncology Department:

1. Establish network connection between regional facilities and UWHC.

Connection is via ISDN lines connected to the Internet. ISDN routers are installed at the regional facilities and at the UWHC Radiation Oncology Department with IP addresses assigned from UW. The IP addresses given to the regional facilities are controlled by the UW-Madison network group.

2. Configure the regional CT scanners and CT simulators to export to the treatment planning computer system at UW.

The regional CT scanners and CT simulators are equipped with data transfer capability that allow files to be exported to UW-Madison via the network connection. During the treatment planning process, a patient is scanned at the regional center using common institutional guidelines for immobilization, IV and intraluminal contrast, and positioning. The physician and dosimetrist at the regional centers indicate critical organs, target volume, and the treatment isocenter. Software conversion programs on the CT scanners and CT/simulators convert data into a format which is run on the UW treatment planning computer. The converted files reside on the CT scanners and CT/simulators under the directory that is to be exported to the treatment planning computer in Madison.

3. Setup the treatment planning computer to mount the exported path.

The transfer file is mounted at the appropriate location, ie, "/files/network/Picker" on the treatment planning computer in Madison. When a patient file is ready to be transferred, the procedure is to log-in to the planning computer, initiate a new patient file, and read the information for "/files/network/Picker" directory. Files from the regional facilities are transferred and made to reside in local discs on the UW computer. The data is the ready to be processed in a conventional treatment planning fashion by the dosimetry staff at UW-Madison. When the plan is complete, the data set is transferred to the regional facility. A beams-eye view of reconstructed images with tumor volume and custom blocking of the critical tissues is printed out on film at the regional facility. Blocks are cut from the reconstructed images. Treatment planning is completed by calculating the dose for each field.

EXPERIENCE WITH TELE-ONCOLOGY

At this time the interactive multimedia videoconferencing system has been installed at the UW hospital. A workstation and FRED are being installed at the Freeport Health Network. Beloit has successfully transmitted CT simulator data to the UW for treatment planning. Wausau is building a new medical oncology and radiation oncology facility that will house these tele-oncology technologies.

Internet access to clinical trials information at the UWCCC Web page and other oncology sites

is commonly utilized by the medical and nursing staff at the regional oncology centers. Other Web sites for general oncology information and national trials that are not open at UW are available at National Institutes of Health, <http://www.nih.gov>, University of Pennsylvania, <http://www.oncolink.eupnn.edu>, and the American Cancer Society, <http://www.cancer.org>. The UWCCC biostatistics group maintains the Web site and is responsible for converting clinical trials documents for display on the Web site. Software needs to be developed to automatically convert clinical trials information received from the national cooperative clinical trials groups directly to HTML. This will decrease the maintenance time required for preparing materials for the Web site.

A few videoconferences have been held. The performance of the technology has been satisfactory. The transfer of meeting file patient data over ISDN occurs with sufficient speed. The video frame rates are adequate. Physician participants appreciate the ability to concurrently annotate images on the whiteboard while conversing with and seeing each other. The radiographic images and pathology slide images are part of the patient data being presented for review in the oncology videoconference. The quality of the image has been satisfactory for these consultations. Diagnostic interpretations are not being formulated from these images. Because the images are for discussion only there is no issue of reimbursement or legal responsibility for diagnostic interpretations.

The major area of work to be done is a clinical rather than technologic issue. A successful videoconference requires preparation of the material, however, if the preparation time is considerable it is less likely that videoconsultation will be successful. Organizational infrastructure that addresses how the information should be organized, which patient data are pertinent, how radiographic images and pathology materials are selected need to be fully developed for tele-oncology conferences to be successful.

CONCLUSIONS

Tele-oncology at the University of Wisconsin and regional oncology affiliates is growing. A variety of the technologic requirements for an interactive system are in place at the regional facilities and at the UW. The regional oncology programs are bringing parts of the program into active service. Internet access for information retrieval as well as interconnection for the physical sites provides the basis of the program. Hardware for videoconferencing at the UW and regional facilities has

been selected based on functional needs of the specific institution and the ability to connect with the entire system. Data transmission for radiation oncology treatment planning needs provides the ability to share expensive services without duplication of staff or equipment.

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Catheter Ablation of Atrial Flutter Using Radiofrequency Current: Cumulative Experience in 61 Patients

by Zalmen Blanck, MD; Thomas Cetta, BA; Jasbir Sra, MD; R. Jazayeri, MD; Anwer Dhala, MD; Sanjay Deshpande, MD; and Masood Akhtar, MD

ABSTRACT

We present our experience with radiofrequency catheter ablation of common atrial flutter. **Methods:** Radiofrequency ablation of atrial flutter was performed utilizing percutaneous techniques and the anatomic approach under conscious sedation or general anesthesia. **Results:** Sixty-one consecutive patients (51 men, and 10 women) aged 59 ± 12 years with medically refractory atrial flutter underwent catheter ablation. Thirty-eight patients (62%) had structural heart disease, including complex congenital anomalies in one patient. Atrial flutter ablation was successfully accomplished in 55 patients (90%) in one session. There were no complications, and all patients were discharged within 24-hours of the procedure. During a mean follow-up of 10 ± 9 months, recurrent atrial flutter occurred in 11 patients (18%), eight of which successfully underwent repeat atrial flutter ablation. **Conclusions:** catheter ablation of atrial flutter using radiofrequency current is safe and has a high success rate. This nonpharmacologic approach should be considered as the first line of therapy for common atrial flutter prior to the institution of antiarrhythmic drugs.

INTRODUCTION

Atrial flutter is a common type of supraventricular tachycardia. It may be an acute, transient arrhythmia seen after myocardial infarction or heart surgery, or it may be chronic, paroxysmal, even without an apparent cause. Pharmacologic management strategies include the use of

antiarrhythmic drugs to restore and maintain sinus rhythm, or atrioventricular nodal blocking agents to prevent a fast ventricular rate. The drawbacks from these strategies include significant and potentially life threatening side effects associated with the use of antiarrhythmic agents,^{1,2} and lack of sinus rhythm with the use of nodal blocking agents.

This is why up until recently, medically refractory atrial flutter was an indication for His bundle ablation.³ This is a palliative procedure with the chief drawback of the creation of permanent pacemaker dependency. Even direct atrial surgery and antitachycardia pacing devices were used for the treatment of atrial flutter.^{4,5}

Radiofrequency catheter ablation is a nonpharmacologic technique that has dramatically changed the management of patients with cardiac arrhythmias. This technique involves the precise localization and the focal destruction (i.e., ablation) of the cardiac tissues responsible for a particular arrhythmia. A successful ablation eliminates the need for pharmacologic agents. Excellent clinical results have been obtained.⁶⁻⁹ This technique is now widely performed and is frequently the initial treatment of choice. Here we present our experience with radiofrequency catheter ablation in patients with common atrial flutter.

METHODS

All patients with common type atrial flutter who underwent radiofrequency catheter ablation at our institution between March, 1993, and April, 1997, were included in this study.

Common type atrial flutter was diagnosed when, in the absence of antiarrhythmic medications, the atrial rates were shorter than or equal to 250 msec (i.e., >250 bpm), and there was a typical "sawtooth" pattern of inverted "F" waves in the inferior electrocardiogram leads (Figure 1).

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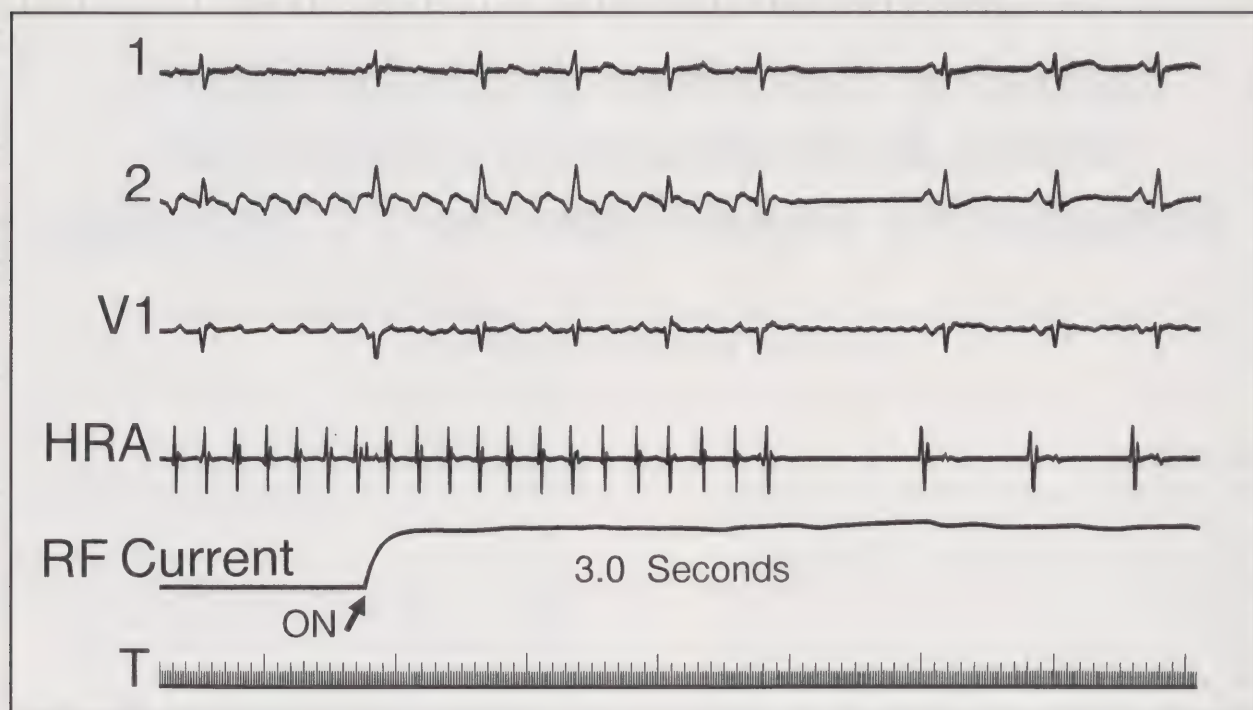


Figure 1. Twelve lead electrocardiogram of common atrial flutter. The inverted flutter waves of the common type of atrial flutter (cycle length 240 msec, 250 bpm) can be appreciated in leads II, III, and aVF.

ELECTROPHYSIOLOGY STUDY AND CATHETER ABLATION

Informed consent was obtained from all patients. Patients were brought to the electrophysiology laboratory in a fasting, nonsedated state. Coumadin and antiarrhythmic drugs were discontinued for several days prior to the procedure. Sedation and/or general anesthesia was achieved with intravenous Midazolam and/or Propofol. Using local anesthesia and percutaneous techniques, three or four quadripolar electrode catheters were introduced into central and/or peripheral veins and advanced under fluoroscopic and electrocardiographic guidance into the right atrium, the His-bundle region, and the right ventricle. An additional decapolar catheter with a 2-mm interelectrode distance was positioned in the ostium of the coronary sinus. Endocardial electrograms were filtered between 30 and 500 Hz and simultaneously recorded with ECG leads 1, 2, and V1 on a computerized multichannel recorder (Midas, PPG Biomedical, and Bloom Associates) at a paper speed of 100 to 200 mm/sec. Electrical stimulation was delivered through a programmable stimulator (Bloom Associates).

When sinus was the intrinsic rhythm, overdrive rapid atrial pacing or programmed atrial stimulation with and without isoproterenol (starting at a dose of 1 mcg/min up to 3 mcg/min) was per-

formed. If atrial flutter was not inducible despite these attempts, then catheter ablation was performed during sinus rhythm. Radiofrequency catheter ablation was performed using a 7F catheter with a deflectable tip and either a 4 mm or a 5 mm distal electrode (Mansfield/Webster or EP Technologies). At target sites, 25-35 watts of unmodulated radiofrequency energy (Radionics) was delivered between the tip of the catheter electrode and a large surface area skin patch. If a sudden rise in impedance occurred during energy application, energy delivery was immediately terminated, the catheter was removed, and any coagulum was cleaned from its tip.

The ablation was anatomically guided¹⁰ by the fluoroscopic position of the catheter and the electrogram recordings from the catheter's distal bipole. Ablation attempts were directed at either the tricuspid annulus-coronary sinus isthmus or the tricuspid annulus-inferior vena cava isthmus (Figure 2). The ablation catheter was progressively withdrawn from the initial position in the ventricular end of the tricuspid annulus towards the junction of the right atrium and the inferior vena cava or towards the coronary sinus ostium. While the catheter was being withdrawn under fluoroscopic guidance, continuous radiofrequency energy applications lasted 1-2 minutes. However, if the impedance was >110 ohms, then the ablation was

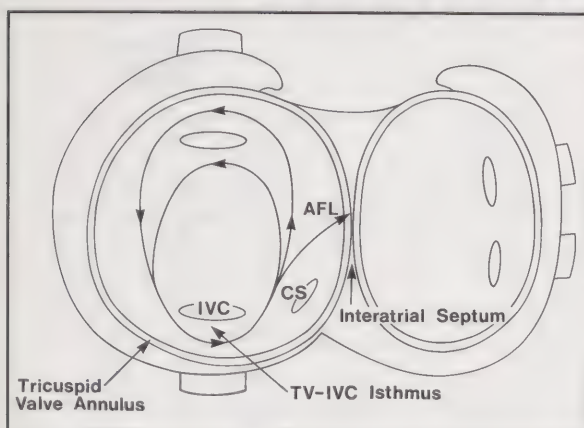


Figure 2. In this figure the right and left atrium are drawn as viewed through the tricuspid and mitral valve annulus in the left anterior oblique projection. The atrial myocardium responsible for atrial flutter is located in the right atrium, between the tricuspid valve (TV) and the inferior vena cava (i.e., TV-IVC isthmus), which is the area most frequently targeted for catheter ablation. In some cases, the isthmus between the coronary sinus (CS) and the IVC or the CS-TV may be critical for atrial flutter and also require ablation. In this example, the direction of the atrial flutter (AFL) reentrant excitation (arrows) can be appreciated. The activation of the interatrial septum in common atrial flutter is caudo-cranial (i.e. counterclockwise direction), which results in inverted P waves in the inferior electrocardiographic leads.

immediately terminated. If ablation at the initial site was unsuccessful in terminating atrial flutter, or if there was no evidence of conduction block in the isthmus when the rhythm was sinus, subsequent pulses were delivered more laterally or septally using the previously described technique.

The end-points of the procedure were the termination of atrial flutter during the application of radiofrequency current, the inability to induce atrial flutter by pacing maneuvers, and, since early 1996, evidence of a conduction block at the tricuspid annulus-inferior vena cava isthmus during atrial pacing maneuvers.

FOLLOW-UP

Patients were monitored in the hospital for 24 hours after the procedure. Echocardiograms were obtained the day after the ablation. All patients had close clinical follow-up after hospital discharge. Electrophysiologic evaluation was not routinely performed in asymptomatic patients.

RESULTS

Patients and clinical characteristics

The study group included 61 patients aged 59 ± 12 years (range 13 to 81 years). There were 51 men, and 10 women. These patients had symptomatic flutter for an average of 43 ± 13 months; 35 patients had been treated with antiarrhythmic drugs (including amiodarone in 18 patients), as well as various atrioventricular nodal blocking agents. Structural heart disease was present in 38 patients (62%) which included coronary artery disease ($n=22$), dilated cardiomyopathy ($n=9$), valvular heart disease ($n=2$), congenital heart disease (atrial septal defect, $n=2$; l-transposition of great vessels and dextrocardia, $n=1$), hypertrophic cardiomyopathy ($n=1$), and severe obstructive pulmonary disease with Cor Pulmonale and an enlarged right atrium ($n=1$). The mean left ventricular ejection fraction was $44 \pm 18\%$. Intracardiac devices were present in 11 patients (automatic implantable defibrillators, $n=2$; permanent pacemaker, $n=9$). Ten patients had undergone prior cardiac surgery. Atrial fibrillation was documented in 13 patients, but atrial flutter was the predominant arrhythmia in all patients. The mean atrial flutter cycle length was 243 ± 43 msec.

Catheter ablation of atrial flutter

Among the 61 patients, 19 patients were in sinus rhythm upon their arrival at the laboratory. Atrial flutter was not inducible in two of these 19 patients and the ablation was performed during sinus rhythm.

Successful atrial flutter ablation was accomplished in 55 patients (90%) in the first session. The average number of radiofrequency current applications in the 55 patients was 19 ± 11 , and the average fluoroscopy time was 39 ± 15 minutes. The successful ablation site was between the tricuspid valve annulus and either the coronary sinus ostium or the inferior vena cava in all 55 patients.

Conduction block in the tricuspid annulus-inferior vena cava isthmus was documented by pacing maneuvers after the ablation in 27 patients (44%). This was the only method of documenting a successful ablation in the two patients without inducible atrial flutter.

Of the six patients with unsuccessful catheter ablations, three patients underwent subsequent successful ablation of the atrioventricular node and pacemaker implantation, and two patients received amiodarone. One patient who had inducible atrial flutter post ablation was

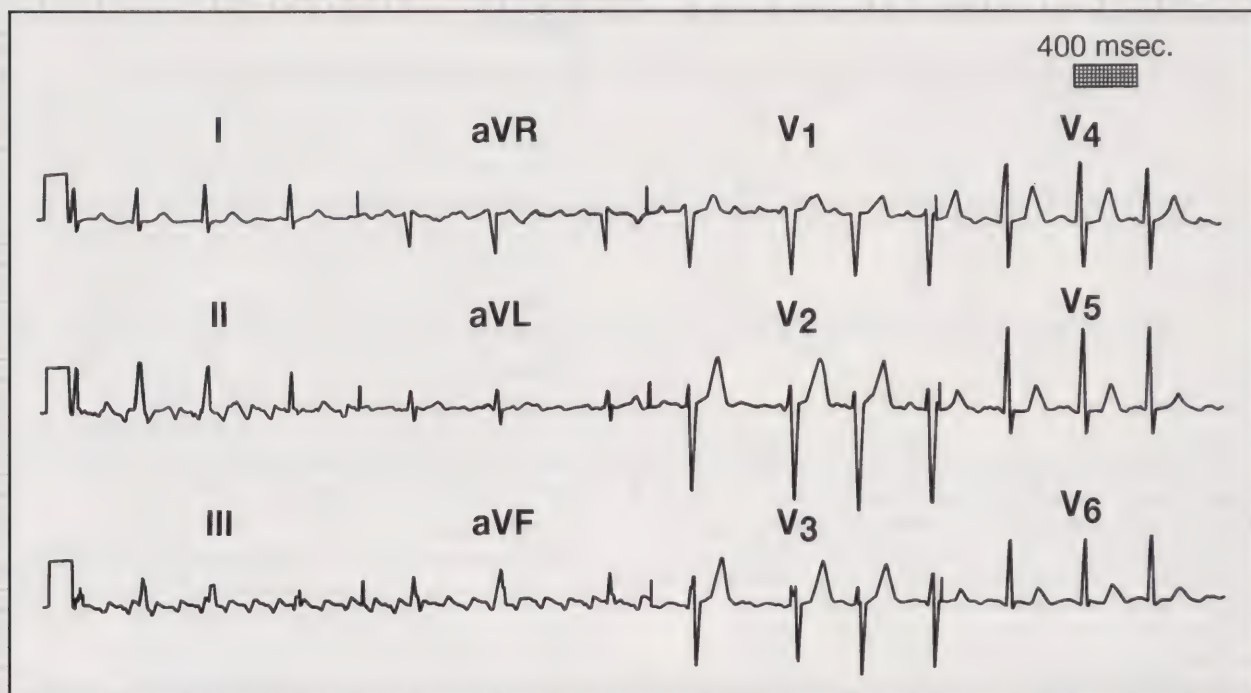


Figure 3. Termination of common atrial flutter during radiofrequency catheter ablation. Application of radiofrequency (RF) current and ablation of the tricuspid valve annulus-inferior vena cava isthmus results in termination of atrial flutter. Note the inverted flutter waves in the inferior leads, characteristic of the common type atrial flutter. HRA, high right atrial electrogram; T, time lines.

discharged in sinus rhythm without medical therapy and had not had symptomatic recurrences three months after hospital discharge.

Complications

No complications were seen at the time of ablation. There was a small pericardial effusion detected by echocardiography in one patient who had undergone heart surgery one month prior to the ablation.

Long-term follow-up

Patients were discharged within 24 hours after the atrial flutter ablation, and were followed for a mean of 10 ± 9 months. Among the 55 patients who were considered to have had a successful ablation, atrial flutter recurred in 11 patients (21%). These patients were treated with a second ($n=7$) or third atrial flutter ablation ($n=1$), atrioventricular nodal ablation and pacemaker implantation ($n=1$), and with medical therapy ($n=2$). Among the 24 patients with a successful ablation in whom a conduction block in the tricuspid valve-inferior vena cava isthmus was felt to have been accomplished during the ablation, recurrent atrial flutter was documented in two patients during the follow-up period.

DISCUSSION

The treatment of atrial flutter with catheter ablation techniques has seen dramatic advances in a short period of time.¹⁰⁻¹⁶ The safety and efficacy of radiofrequency catheter ablation⁷⁻¹⁰ coupled with the increased mortality associated with the use of antiarrhythmic medications^{1,2} have promoted this nonpharmacologic technique as the first line of therapy for common atrial flutter.

In this report, we present our experience with catheter ablation of common atrial flutter. Our primary success rate of 89% and lack of significant complications during catheter ablation are comparable with other studies.¹⁰⁻¹⁶ This technique can be performed successfully even in those patients with advanced structural heart disease and significant left ventricular dysfunction. These patients were excluded in the early experience with this technique although they can derive the most benefit from being in sinus rhythm without the use of antiarrhythmic drugs.

ANATOMY AND PATHOPHYSIOLOGY OF ATRIAL FLUTTER

It has been shown that the atrial myocardium responsible for atrial flutter (i.e., the atrial flutter circuit) is localized in the right atrium.^{4,17,18} The

critical areas that maintain atrial flutter are rims of tissue, also called an isthmus, that are characterized by their slow conduction (i.e., anisotropic) properties and are localized between the inferior vena cava and tricuspid annulus, between the inferior vena cava and the coronary sinus, or between the coronary sinus and the tricuspid annulus^{13,16,19} (Figure 2). Of these three areas, the one between the inferior vena cava and the tricuspid annulus appears to play the most critical role in atrial flutter.^{10,15,16} Therefore, in most cases, the aim of the ablation is to eliminate the propagation of the electric impulse across this particular isthmus.

TECHNIQUE OF ATRIAL FLUTTER CATHETER ABLATION

Ablation of the isthmus is performed by applying radiofrequency current at or very close to the tricuspid annulus. The tip of the catheter can then be progressively withdrawn towards the orifice of the inferior vena cava.¹⁰ If atrial flutter is the intrinsic rhythm, it spontaneously terminates when the cumulative effect of the ablation severs the isthmus, which becomes unable to transmit the electric impulse and therefore, to maintain atrial flutter (Figure 3).

Among the initial problems associated with atrial flutter ablation was the high recurrence rate.^{10,15} It became apparent that the initial noninducibility of atrial flutter in the laboratory (the initial sole goal of atrial flutter ablation), did not necessarily predict freedom from recurrent atrial flutter during the follow-up period. More recent studies have shown that the recurrence of atrial flutter is dependent upon the presence of an incomplete ablation of the isthmus, allowing residual conduction in this site. Although partial isthmus ablation may result in termination of and inability to reinduce atrial flutter in the laboratory, it does not preclude recurrent atrial flutter during follow-up.

Lately, it has been shown that the creation of a "line of block" or electrical severance between the inferior vena cava and the tricuspid annulus is a strong predictor of long-term success, and should be the final end-point of the ablation once the atrial flutter is no longer inducible.^{20,21} Using atrial pacing through a catheter positioned by the coronary sinus ostium, a "line of block" can be demonstrated in the laboratory immediately after the atrial flutter is eliminated and sinus rhythm is restored.^{20,21} When a conduction block is successfully accomplished, there is a change in the

sequence of activation of the right atrium as the paced impulses are no longer able to reach the high right atrium through the isthmus, but instead do so by propagating upwards through the interatrial septum. If conduction across the isthmus is demonstrated, further ablation can then be performed. Our experience is consistent with the above observations, as recurrent atrial flutter occurred in only two of the 24 patients in whom a "line of block" was created during the ablation.

In addition to being a predictor of long-term success, knowledge of the atrial activation sequence before and after the creation of a "line of block" allows ablations to be performed during sinus rhythm in those patients in whom atrial flutter may not be induced at the time of the procedure.²⁰

ATYPICAL ATRIAL FLUTTER

In some cases, atrial flutter may have an atypical appearance (without the sawtooth flutter waves) exhibiting upright or positive flutter waves in the inferior leads. Recent studies suggest that the reentrant circuit during atypical atrial flutter is the same as in the common type of atrial flutter, but the electrical depolarization travels through the circuit in the opposite direction as compared with common atrial flutter (i.e., clockwise versus counterclockwise).²² Therefore, catheter ablation and the creation of a conduction block along the tricuspid valve-inferior vena cava isthmus have also been successful in eliminating this type of atrial flutter.²²

CONCLUSIONS

Given the safety and efficacy of radiofrequency catheter ablation for common atrial flutter, this approach should be considered as the first line of therapy in most patients requiring treatment. A successful ablation will avoid the proarrhythmic and negative inotropic effects of antiarrhythmic drugs, particularly in patients with left ventricular dysfunction, and in comparison will become rapidly cost-effective.²³ The restoration of sinus rhythm will also obviate the need for coumadin and potential systemic embolization that may be associated with atrial flutter or its cardioversion to sinus rhythm, particularly in patients with left ventricular dysfunction.²⁴

Addendum: since the original submission, common atrial flutter was successfully ablated with radiofrequency catheter techniques in 12 out of 13 patients.

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Gastrointestinal Upsets and New Copper Plumbing – Is there a Connection?

by Lynda Knobeloch, Carla Schubert, Jennifer Hayes,
James Clark, Charles Fitzgerald, and Anthony Fraundorff

Key Words: Copper, phosphate, nausea, weight loss, diarrhea, drinking water, plumbing, new homes

ABSTRACT

This article summarizes two investigations that examine the health effects of prolonged exposure to copper-contaminated drinking water. The first study was initiated after elevated copper levels were detected in several homes that were either newly constructed or recently remodeled. All of these homes were served by the same municipal water supplier. The second case involved illnesses and water-quality problems that were reported by several residents of a mobile home park shortly after a new water distribution system was installed. Findings from these investigations suggest that copper-contaminated drinking water may be a fairly common cause of nausea, diarrhea, abdominal cramps, and headaches – especially among residents of new or recently-remodeled homes, and in areas where water supplies are naturally corrosive.

BACKGROUND

Ingestion of copper-contaminated food or beverages can cause acute gastrointestinal symptoms including abdominal discomfort, diarrhea, nausea, and vomiting. During 1992 and 1993 the Wisconsin Division of Health investigated five incidents in which copper-contaminated drinking

water was suspected of causing illness. Our findings suggested that prolonged ingestion of copper-tainted water might be a relatively common cause of gastrointestinal upsets.¹ Since these findings were published, the Division has conducted two additional investigations involving copper-contaminated drinking water supplies. Findings from these case studies provide further evidence of an association between exposure to copper-contaminated drinking water and self-reported symptoms of nausea, diarrhea, abdominal cramps, and headaches.

METHODS

Household tap water samples were collected in accordance with procedures described in the National Primary Drinking Water Regulations for Lead and Copper. "First draw" tap water samples were collected after water had been in contact with the plumbing for at least six hours. Copper analyses were conducted by the Wisconsin State Laboratory of Hygiene using EPA method no.

Table 1. Community Water Test Results for Investigation I

Risk Factor	# Homes	Copper levels mg/L (mean)	% Exceeding Action Level
Home built during the past 5 years	29	0.12-3.6 (1.9)	69 %
Home remodeled during past 5 years	40	0.11-3.3 (1.3)	50 %
Home built or remodeled 6-10 years ago	16	0.27-3.2 (1.1)	37 %
Home built or remodeled > 10 years ago	166	0.013-1.4 (0.52)	1 %
Total	251	0.013-3.6 (0.85)	19 %

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Table 2. Respondent Demographics for Investigation I

Demographic indicator	No.
Age	
1-18 yrs	35
19-84 yrs	153
Gender	
Males	85
Females	103
Home type	
Single-family	87
Multi-family	2
No. occupants per household	1.5
Drinking water supply*	
First draw tap water	65
Flushed tap water	118
Bottled water	50

* Total exceeds 100% because several respondents reported more than one drinking water source.

200.7. Health, residential history, and water use information was collected using self-administered questionnaires. Data analysis was conducted using EpiInfo software developed by the U.S. Centers for Disease Control and Prevention in Atlanta, GA.

RESULTS

Investigation I Sentinel case report

Two months after moving into a newly-constructed condominium, a 55-year old woman sought treatment for chronic diarrhea, nausea, abdominal pain, and weight loss. Her medical history indicated no pre-existing illnesses and the patient felt that her condition might have been caused by the stress of moving or by stress from her work as a teller at a local bank.

A routine physical examination was unremarkable, however the patient appeared pale and fatigued and reported a 15-pound weight loss over the past three months. A serum chemistry panel, CBC, and ESR were within normal limits. A flexible sigmoidoscopy and barium enema were normal. In addition, stool examinations for *Clostridium difficile*, ova and parasites, pathogenic bacteria, and occult blood were negative. After being informed of these results, the patient expressed concern that her water appeared blue and left a bluish residue in her dog's bowl. She also stated that her dog had been sick and had lost weight. The physician then requested a blood test which revealed a serum copper level of 204 ug/dL (normal 70-155) confirming exposure to this metal. An early morning first draw water

Table 3. Effect of selected exposure risk factors on symptom rates

Number of respondents reporting symptoms more than once a month

	Total	Diarrhea	Indigestion	Cramps	Nausea	Headache
Drinking water type						
First draw	65	14	17	17	17	14
Flushed	118	7	14	6	2	14
Relative risk (95% CI)		3.63 (1.54-8.54)	2.20 (1.16-4.18)	5.14 (2.13-12.4)	6.35 (1.36-29.7)	1.82 (0.92-3.57)
Home built or remodeled -						
During or after 1986	83	15	20	15	7	20
Before 1986	105	7	11	3	2	10
Relative risk (95% CI)		2.71 (1.16-6.34)	2.30 (1.17-4.53)	6.33 (1.89-21.12)	4.43 (0.94-20.75)	2.52 (1.25-5.11)
Copper level						
> 0.5 mg/L	116	17	20	15	9	24
≤ 0.5 mg/L	72	5	11	3	0	6
Relative risk (95% CI)		2.11 (0.81-5.47)	1.13 (0.57-2.22)	3.10 (0.93-10.35)	Not defined	2.48 (1.07-5.78)
Consumed "first draw" water with copper levels -						
> 0.5 mg/L	40	13	13	11	7	12
≤ 0.5 mg/L	25	1	4	0	0	2
Relative risk (95% CI)		8.13 (1.13-58.36)	2.03 (0.74-5.54)	Not defined	Not defined	3.75 (0.91-15.38)
Estimated copper intake						
> 3 mg/day	26	5	8	8	2	7
≤ 3 mg/day	162	17	23	10	7	23
Relative risk (95% CI)		1.83 (1.13-58.36)	2.17 (1.09-4.32)	4.98 (2.17-11.46)	1.78 (0.39-8.11)	1.90 (0.91-3.97)

Table 4. Illness reporting rates for Investigation II

	N	New illness	Diarrhea	Stomach upsets
Adults	22	10 (45%)	7 (32%)	9 (41%)
Children (0-18 yrs)	16	12 (75%)	4 (25%)	10 (63%)
Total	38	22 (58%)	11 (29%)	19 (50%)

sample collected from her kitchen faucet contained a copper concentration of 2.6 mg/L, twice the federal action level of 1.3 mg/L. A water sample from the bank where she was employed contained 2.3 mg copper per liter. The patient's symptoms resolved within a week after she began drinking bottled water.

COMMUNITY INVESTIGATION

After this sentinel case was reported to the city, the municipal water utility collected tap water samples from 15 homes in the vicinity of the condominium for copper analysis. Copper levels in these samples ranged from 0.1 to 4.3 mg/L (mean 2.3) with samples from 11 of the 15 homes exceeding the federal action level. A series of public meetings was held by the utility to present these findings and to discuss possible remedial strategies. At these meetings, several residents reported gastrointestinal upsets, hair discoloration, and blue-green staining of laundry and bathroom fixtures which they believed were caused by high copper levels. In response to these preliminary findings, the water utility provided copper test kits to all community residents. Residents of newly constructed or recently remodeled homes were especially encouraged to submit a tap water sample for analysis.

Over a four-week period, 251 families submitted a first draw tap water sample for analysis. Copper levels in these samples ranged from 0.013 to 3.6 mg/L (median 0.575 mg/L). Forty-eight homes had copper levels above the federal drinking water action level of 1.3 mg/L. Homes that were built or remodeled within the past 10 years had the highest copper levels. More than half (46 of 85) of the tap water samples collected from these homes had copper levels that exceeded the federal action level of 1.3 mg/L. By comparison, only two of 166 homes that were more than 10 years old and had not been remodeled had elevated levels (see table 1).

In an effort to evaluate the impact of this widespread water-quality problem on the health of community residents, the county health department mailed questionnaires to each household that

**Table 5.
Water supply test results for Investigation II**

Lot #	Home age (years)	First draw copper level (mg/L)	Flushed copper level (mg/L)	# Residents with symptoms
4	26	Not tested	Not tested	—
5	33	Not tested	Not tested	0/2
6	18	1.10	1.90	5/5
9	4	2.50	1.20	0/1
17	7	0.40	3.70	0/3
19	15	Not tested	Not tested	0/1
20	13	1.60	1.90	0/1
21	Not available	1.20	0.99	6/6
22	2	0.96	1.80	4/4
24	3	0.42	3.40	3/3
28	2	1.10	0.50	2/4
30	Not available	0.81	0.73	Not available
31	4	Not tested	Not tested	0/5
33	29	1.60	3.10	1/1

participated in the water testing program. These self-administered surveys requested residential histories, general health information, water consumption habits, and the frequency of gastrointestinal symptoms and headaches. The surveys also included several questions about the health of pet cats and dogs, and about the survival of fish kept as pets. Surveys were completed by 89 families comprising a total of 188 respondents (see table 2).

Five children and thirty-two adults reported experiencing gastrointestinal symptoms more than once a month during the previous 12 months. These individuals, who lived in twenty-five separate households, described symptoms of indigestion, diarrhea, abdominal cramps, and/or nausea. In addition to these symptoms, thirty residents reported frequent headaches. Residents whose homes were built or remodeled during the last ten years, those who regularly consumed "first draw" tap water or lived in homes that had elevated copper levels had higher symptom rates than others (table 3). An estimated daily copper intake of more than 3 milligrams from drinking water was also associated with an increased risk of illness. Illness rates were not significantly affected by age with 14.3% of children and 20.9% of adults reporting symptoms (p-value 0.37).

PET HEALTH SURVEY

Twenty-four families kept freshwater or tropical fish. All of these families used tap water to fill their fish tanks. Copper levels in water samples collected from ten homes that reported unexplained fish deaths were higher than levels in fourteen

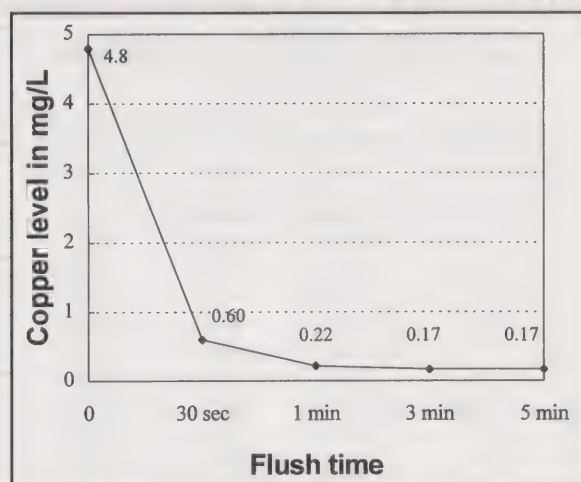


Figure 1. Copper levels in tap water samples collected from a single-family home before and after flushing the faucet.

homes that did not report this problem. Median copper levels were 0.97 vs. 0.57 mg/L, respectively (p-value 0.07).

Thirty-eight families reported having at least one dog or cat as a pet. Copper levels in tap water samples from these homes ranged from 0.33 to 2.6 mg/L. Only one dog owner reported illness that was consistent with acute copper toxicity. That report came from the sentinel patient who reported that her dog had experienced a significant loss of weight since she moved into her condominium.

Investigation II Community Investigation

During the summer of 1996, the Wisconsin Department of Natural Resources and the Lincoln County Health Department conducted a health and water quality survey in a 33-lot mobile home park. This action was prompted by a three-year history of complaints from residents who were concerned about "blue water" that had a metallic taste, and about the prevalence of gastrointestinal upsets among families in the park. These complaints began to be received shortly after the park's water distribution system was replaced with new copper pipes.

At the time of the investigation, 24 families were residing in the park. A brief questionnaire was sent to each home requesting information including the number of family members, their ages, and whether anyone had experienced new or unusual illnesses since moving into the park. Those who reported illnesses were asked to describe their symptoms and indicate whether they

noticed any change in their health while away from their residence. The head of household was also asked to provide information about the age of their mobile home and the use of water treatment devices.

Thirteen families completed the mailed surveys. Respondents included 22 adults and 16 children (aged 1-17 yrs). Seven families reported new or unusual illnesses that affected 12 children and 10 adults. The most common symptoms were stomach upsets – which were described as stomach pain, stomach aches, stomach cramps, nausea, or gas – and diarrhea (see table 5). Two residents described frequent urinary tract infections and two complained of thinning hair. Symptom rates were higher among children than among adults (RR 1.65, 95% CI 0.96-2.83).

To assess copper exposure, "first draw" and "flushed" tap water samples were collected from ten homes. Copper levels in "first draw" tap water samples ranged from 0.4 to 2.5 mg/L (mean 1.2) with levels in three samples exceeding the federal action level. Copper levels were higher in the samples that were collected after a 20-second flush. These levels ranged from 0.5 to 3.7 mg/L (mean 1.9) with six samples exceeding the action level (see table 4). At least one water sample contained excessive copper levels in seven of the ten homes that participated in the testing. Copper levels were not correlated with the age of the mobile home. None of the families that responded to the survey owned water treatment devices.

DISCUSSION

Copper is an essential micronutrient and is a natural component in most foods. Levels in milk, vegetables, meat, and grains range from less than 0.05 to 2 mg per kilogram (ppm).² These sources provide a dietary copper intake of approximately 0.5 to 1 mg/day and do not pose a risk of toxicity in healthy individuals. Most of the copper contained in foods is probably present in organic forms that have a low potential for gastric irritation. Ingestion of food or water that contains high concentrations of dissolved metallic copper can result in acute illnesses that are characterized by nausea, vomiting, abdominal pain, and diarrhea.^{3,4} These symptoms result from the irritant effects of inorganic copper on the gastric and intestinal mucosa.

Little is known about the effects of copper-contaminated drinking water on the health of cats and dogs, however fish and other aquatic species are very sensitive to the toxicity of copper. To

protect aquatic biota, the U.S. Clean Water Act established a fresh water quality criterion of 0.0056 mg/L for dissolved copper.⁵

The investigations that are described in this article were designed to assess the effect of copper-contaminated household water supplies on the health of several Wisconsin families and their household pets. The finding of gastrointestinal upsets among several residents and increased rates of fish mortality in homes that had elevated copper levels are consistent with previously published studies.

The detection of copper-contaminated water in homes that are more than a year old is usually associated with a naturally corrosive water supply. However, the water supply that serves the community described in Investigation I is not naturally corrosive. This water, which is drawn from 300- to 700-foot wells located in a limestone aquifer, is naturally low in copper and has a pH of 7.2 to 7.4 and an alkalinity of 296 to 350 mg/L (as CaCO₃). During 1992-1993, the water supplier collected "first draw" tap water samples from 40 homes that were built before 1985, as is required by the National Primary Drinking Water Regulations for Lead and Copper. These samples contained acceptable copper levels that ranged from 0.10 to 0.56 mg/L. In 1991, the supplier began adding phosphate to the system to sequester iron that had entered one of the community wells. An engineering firm that was hired to investigate the cause of the copper contamination concluded that the phosphate kept calcium and magnesium in suspension preventing carbonates of these minerals from depositing on the inner surface of water supply pipes.⁶ The lack of this protective mineral coating caused copper pipes that were installed after 1991 to be more susceptible to leaching and increased the risk of copper-contaminated drinking water.

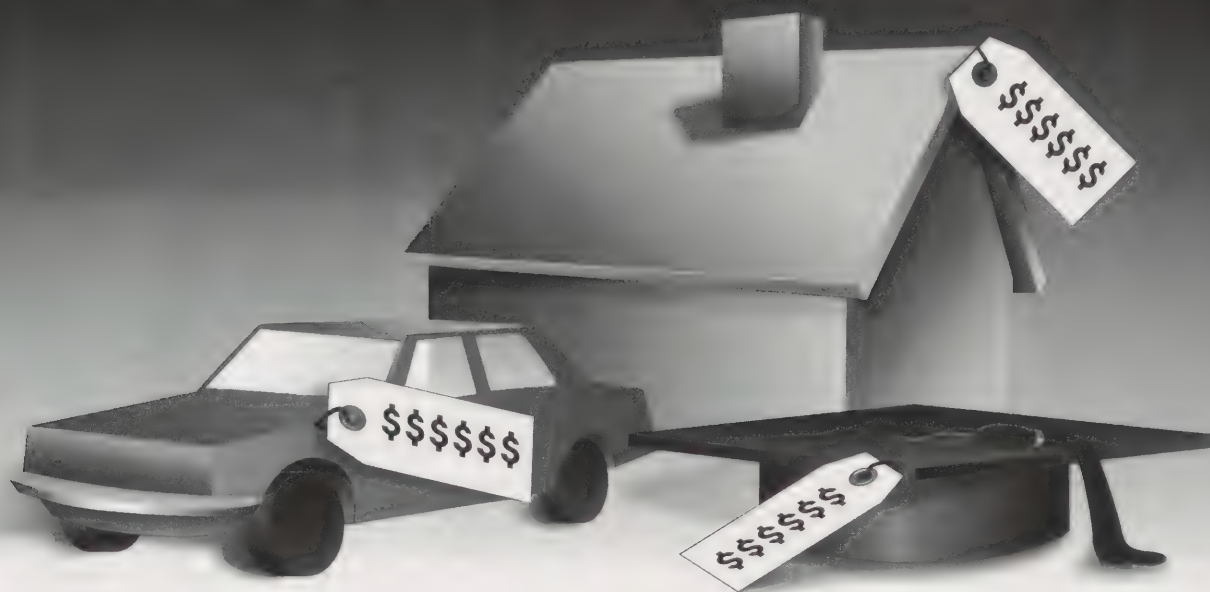
In Investigation II, high copper levels were detected in tap water samples from several households in a mobile home park that was located in a region of Wisconsin where groundwater tends to be very low in mineral content and naturally corrosive. The well serving these residences is owned and operated by the park owner. As a non-community public water supply, it is subject to regulation under the federal Safe Drinking Water Act. If copper levels continue to be elevated, the owner will be required to install a treatment system to reduce the natural corrosivity of the water.

As shown in figure 1, exposure to copper-contaminated drinking water can usually be avoided by flushing the faucet for a minute or two

before collecting drinking water. However this process may be ineffective in large buildings such as multi-unit residential buildings, and in situations where the copper originates from water distribution pipes located outside the home. During the past twenty years, copper-induced illnesses have been documented in Vermont,² Wisconsin,¹ and California,⁷ as well as in the United Kingdom,⁸ Germany,⁹ Sweden,¹⁰ Denmark,¹¹ and Australia.¹² Due to the widespread use of copper plumbing materials and the tendency of copper to leach into drinking water, copper intoxication should be included in the differential diagnosis of any patient who presents with chronic or intermittent gastrointestinal upsets – especially when these symptoms occur in conjunction with a change in water supply. In addition, owners of homes with new copper plumbing should be informed about the health effects of copper-contaminated drinking water and advised to have their water supplies analyzed for copper if they suspect a problem.

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CPR Practices in Wisconsin Long-Term Care Facilities

Bernard J. Hammes, PhD, Richard S. Kane, MD

Introduction

In the last two decades CPR practices for emergency and hospital personnel have been carefully considered. Emergency medical technicians (EMT) will attempt CPR in a person without pulse or breathing unless there are obvious signs of clinical death or they have and are allowed to follow a specific physician's order not to initiate CPR. Likewise in hospitals, staff are expected to initiate CPR and call a code unless there is a written physician's order directing that CPR not be attempted.

While these practices have received a great deal of discussion, less attention was given to CPR practices in long-term care situations. It is not clear that practices that evolved in hospitals or emergency services can be easily used to create practices for long-term care. Long-term care facilities do not typically have the access to advance cardiac life support found in a hospital. If CPR is started in a long-term care facility, staff will call EMTs for assistance and transport. More importantly, the residents of long-term care are a more defined population than that

typically served by either a hospital or emergency services.

In 1989, the issue of CPR practice in Wisconsin's long-term care facilities came to the fore when then State Senator Russell Feingold issued a press release, in response to a nurse's allegations that nursing home residents were denied CPR without their consent.¹ Senator Feingold held several public hearings on the matter and suggested that CPR practices might be created through new state legislation.

A state-wide committee with representatives from government, medicine, nursing, emergency care, ethics and law convened to develop a set of CPR guidelines for long-term care facilities that would be formally approved by the SMS and distributed by the Bureau of Quality Compliance from the Department of Health and Social Services. In December of 1991, the "Practice Parameters Regarding the Initiation and Implementation of Cardiopulmonary Resuscitation in Wisconsin Long Term Care Facilities" were finished and approved by the SMS. This document was distributed by the Bureau of Quality Compliance in memo BQC-92-003 on January 9, 1992.

These Wisconsin CPR Practice Parameters dealt with a series of topics including the definition of CPR, known outcome data, the symbolic aspects of CPR, and guidelines on CPR practices for long-term care. In light of the known outcome data about the success of CPR in long-term care,

the degree of frailty of some populations of residents in long-term care, and the EMT response time delivering advanced cardiac life support, these practice parameters recognized that some facilities may justifiably establish a policy that CPR would not be initiated for residents who have a cardiac arrest. The practice parameters clearly required that any policy be explained to residents prior to admission to the facility and any residents who were admitted with a promise of resuscitation should be allowed to remain in the facility with that promise honored.

The Wisconsin CPR Practice Parameters have been widely accepted by nursing homes. In a published survey of Wisconsin nursing homes, 28% responded that, by policy, their staff would not initiate CPR, and that virtually all of these homes notified their prospective residents during the admissions process of their policy.² Recently, however, the Health Care Financing Administration (HCFA) declared across-the-board no CPR policies illegal on the grounds that such CPR policies denied residents their right to formulate an advance directive which is specified in the Social Security Act (HCFA Region V DHSQ Regional Letters #96-05 and #97-04). In light of this HCFA position, everyone interested in the care of the frail elderly in long-term care, needs to decide whether to accept HCFA's position or whether to support and defend the Wisconsin CPR Practice Parameters.

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Outcome Considerations

To see why the Wisconsin CPR Practice Parameters would allow some long-term care facilities to have a policy not to initiate CPR for any residents, the outcome data for CPR needs to be understood. Successful use of CPR is highly variable and ranges from 5% to 50%, depending on patient selection and location. Results in the elderly are worse, ranging from 0% to 25%. Results for nursing home residents are uniformly poor, ranging from 0% to 12% with the better results occurring in cities with excellent EMT services and more discrimination in the selection of appropriate CPR candidates.³⁻¹⁰

An area of confusion is the definition of "success." Success is often measured only by presence of adequate circulation and respiration, or by discharge from the hospital alive. Neurologic status is not counted in the success rate. The rates would be significantly lower if poor neurologic status were considered to be a failure. In fact, about 10% of all successes are actually permanently vegetative. Only 40% of survivors are free from neurologic deficit.^{11,12} Nearly half of survivors two months post CPR are profoundly disabled. The elderly aged 75 and older are significantly more likely to be severely disabled.¹²

Early defibrillation is crucial for successful CPR in the general population. Each passing minute following a cardiac arrest represents an estimated 10% decrease in the chance of survival.¹³ EMT response times of ten minutes or greater are not uncommon for many nursing homes, particularly rural ones.² Resuscitation in such homes is virtually futile, especially considering the more frail health of nursing home residents relative to the general public. Keeping defibrillators in nursing

homes with ACLS-trained physicians has not resulted in any significant survival of chronic-care patients, although otherwise healthy rehabilitation patients in these homes did as well as the general population.^{5,6}

Ethical Considerations

In light of the population of some long-term care facilities, the EMT response time, and the history of CPR outcomes, the Wisconsin CPR Practice Parameters allowed long-term care facilities to determine whether it is reasonable to offer CPR to residents as a matter of practice and policy. For statewide practice parameters on CPR to mandate that all long-term care facilities have a policy that requires them to offer CPR would seem to force many nursing homes in Wisconsin to be dishonest. At some facilities there is no reasonable expectation of a successful CPR attempt. It is more honest to say that CPR in such facilities should be considered experimental until research shows that CPR is of proven benefit.

From the point of view of patient autonomy, it might be argued that a long-term care facility, which by policy would not initiate CPR for residents who had a cardiac arrest, is denying self-determination. This position might be held as a matter of principle or matter of practical reality.

As a matter of principle it might be argued that CPR is a basic medical service that any patient has a right to choose. This view would suggest that a patient has a right to demand CPR even if judged ineffective. This view of a patient's right to demand treatment has been carefully explored and clearly rejected.^{14,15} Even HCFA, in a letter to one of this article's authors (copy on file at the SMS),

declared that "a resident's preferences for an intervention not warranted by medical symptoms should not be honored and that unwitnessed arrests should not trigger resuscitation." As a matter of principle, then, a decision not to offer CPR does not violate a person's right to self-determination.

Perhaps, according to some, a denial of self-determination occurs because it limits practical choices to some people. With this view, long-term care facilities are required to provide CPR as basic service so that anyone who would want to seek service from the facility could do so. So for example, a long-term care facility near a prospective resident's home that does not provide CPR may interfere with self-determination, since that person who might benefit from CPR may wish to receive services from this long-term care facility, yet may have to seek nursing care at an inconvenient distance from the home where CPR is offered. Of course this situation would not deny choice to the person, but perhaps make the choice more difficult: Would it be better to forgo the possibility of having CPR and be close to home or to receive care at a greater distance from one's home but have the knowledge that in the event that a cardiac arrest occurred CPR would be attempted?

This choice, however, is similar to ones made when considering nursing homes that do not provide certain services such as peritoneal dialysis or total parenteral nutrition. Patients who wish to have these services at a specific nursing home where they are not provided are routinely required to seek these services at other nursing homes. Long-term care facilities that do not provide such services do not violate a patient's right to accept

or refuse treatment or to formulate an advance directive. Long-term care facilities are able to decide not to offer certain life-sustaining treatments presumably because they are seldom used and are expensive to provide on an occasional basis. It is not clear how CPR for some facilities would be different from these other limited treatments.

Finally, the services provided by a long-term care facility need to be judged by considering the ethics of a just allocation of resources. The Wisconsin CPR Practice Parameters recommend that facilities which offer CPR must provide adequately-trained staff 24-hours a day who may respond to a cardiac arrest within a few minutes. In facilities with frail residents and long EMT response times, there may be no successful resuscitations and few, if any, residents who would want CPR. It would seem an injustice to require a facility, which has no reason to attempt CPR and has little call for it, to train staff when these resources could be better utilized to provide other services to the whole population of the facility. For example, we could certainly do far better in training staff in how to assess and manage pain and other symptoms at the end of life. This use of resources would benefit far more residents, than would demanding that all nursing homes always be prepared to start CPR in a few residents.


Conclusion

The Wisconsin CPR Practice Parameters were carefully and thoughtfully developed to balance the efficacy and demand for CPR with the ethical principles that guide medical care in diverse nursing home circumstances. These practice parameters have been endorsed by the SMS, approved by state government,

and accepted by long-term care facilities as an appropriate guide to formulate CPR policies. Clearly no patients' rights are being denied (although some patients could be inconvenienced). More importantly, it allows those closest to patient care to determine what is most ethically-medically appropriate for care given their resident population, EMT response time, and a desire to provide the best end-of-life care possible. This flexibility of determining benefits and burdens is an important hallmark of ethical thoughtfulness. These Practice Parameters should not be discarded because of a seemingly incorrect, bureaucratic interpretation of the law.

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Applying 20th Century Law to 21st Century Medicine

Kalisa Barratt, JD, Associate General Counsel

Until recently, "Bones" McCoy, Medical Director of the Starship Enterprise had a monopoly on telemedicine. But over the past twenty to thirty years, advances in technology have made telemedicine a reality here on Earth. Physicians who practice telemedicine can use a variety of technological wonders such as the telephone, fax and high-tech

audio-visual equipment, and even robotics. This new way of delivering health care has been touted as being greatly beneficial to both physi-

cians and their patients. Rural patients can get immediate care from specialists whose offices are miles away. Rural physicians can receive continuing education without taking much travel time out of the office. However, telemedicine also raises a number of issues including: reimbursement, patient privacy, informed consent, licensure, and physician liability.

The definition of telemedicine is quite broad. The AMA's Council of Medical Education and Council on Medical Services define telemedicine as "the provision of health care consultation and education using telecommunication networks to communicate information," and as "medical practice across distance via telecommunications and interactive video technology." As a result, new medical terms are

emerging like telecardiology, teleradiology and telepathology.

The following article touches briefly on legal issues raised by telemedicine practice. Note at the outset that many of these issues are largely unresolved.

Reimbursement

Generally, commercial insurers do not cover telemedicine services. Although reimbursable in some states, services provided via telemedicine are not yet considered reimbursable services under the Wisconsin Medicaid system. Likewise, HCFA has indicated the only Part B telemedicine service that is reimbursable is electrocardiogram monitoring. In the absence of an established HCFA policy, most private payors have not developed a telemedicine reimbursement policy. However, HCFA is preparing a Medicare waiver for a three-year demonstration project to pay for telemedicine services focusing on medical consultations. This is planned to take place in Georgia, Iowa, North Carolina, and West Virginia.

Confidentiality

Just as with the typical doctor-patient relationship, there are physician-patient confidentiality concerns raised by telemedicine services. Physicians who practice telemedicine must comport with the medical records and confi-

dentiality laws of the various states where their patients live. These laws are less than uniform although federal legislation is expected in this area in the near future. The Health Insurance Portability and Accountability Act requires the Secretary of Health and Human Services to promulgate rules for the electronic transfer of medical records. Wisconsin has a comprehensive medical records law that presently applies to electronic medical records.

Using electronic medical records and faxing medical records may also give rise to greater breach of confidentiality risks because of the lack of control the sender has. How many times have you faxed something and it was never received on the other end? Plus, there is always a concern that records stored electronically can be accessed by unauthorized employees or even computer "hackers." At the very least, computer security issues should be addressed early on with employees having access on a "need-to-know" basis. Physicians and clinics should also create, and then strictly enforce, all confidentiality policies.

Licensure

In order to practice medicine, physicians must be licensed. Each state has specific licensing requirements that a physician must meet. The question



telemedicine raises is: If a physician is in Wisconsin and he or she conducts a consult on a patient who is in Kentucky, is the physician practicing medicine in Kentucky and therefore practicing without a license? The answer is: It depends on the Medical Practices Act's definition of "practicing medicine" and physician licensing laws of the individual state.

In Wisconsin, the practice of medicine is defined as examining, treating, operating, prescribing or advising about the facts, condition or cause of human health or disease "by any means or instrumentality." Wis. Stats., §448.01(9)(a). This certainly can be interpreted to include the use of telemedicine. Many states allow out-of-state physicians to consult within the state without a license by excluding consulting physicians from the state's Medical Practices Act. Other states require licensure. Wisconsin had a broad consultation exception for out-of-state physicians who are "actually" consulting with a Wisconsin licensed physician. Wis. Stats., §448.03(2)(d). However, these exceptions were created by the legislature without telemedicine in mind. Thus, before conducting any telemedicine outside of the states you are licensed in, you should research the state's law or call the state's medical examining board to see if it has an opinion on telemedicine.

Physician Liability

Where will you be sued?

Like the question raised in the licensing section, when considering physician liability, there is a question as to which is the appropriate state forum for the patient to use in a negligent telemedicine suit -- where the patient was located, where the physician was located or both? There is little case law to help guide these kinds

of jurisdictional decisions. As long as this question remains unanswered, plaintiff's attorneys will choose the state with the most favorable laws. This is known as "forum shopping." The particular standard of care a physician is held to may be higher or lower, depending on state law. Likewise, damages and asset seizure laws vary. Given that Wisconsin has a cap on non-economic damages, plaintiff's attorneys are likely to choose the patient's home state in which to litigate the matter.

Physicians who plan to practice telemedicine across state lines should contact their malpractice insurance carriers to determine whether they are covered for medical malpractice defense which takes place in other states. If the policy is silent on this issue, you should contact your insurance agent to clarify the policy's terms.

To whom do you owe a duty of care?

One of the elements a plaintiff's attorney must prove in a malpractice claim is that the physician who is being sued owed the injured patient a duty of care. This duty arises only if there is a physician-patient relationship. With telemedicine technology, making the determination of the existence of a relationship becomes difficult. Generally, where a physician has provided medical care, such as in the case of a telephone consult or electronic radiographic interpretation, courts will likely find that a relationship exists. This is so even though the physician and patient have never met face to face. Courts have held, for example, a physician-patient relationship exists between a patient and the pathologist who interpreted the patient's lab reports. But it is unclear whether

a court would find a relationship existed where a physician maintains a home page on the World Wide Web and responds to medical questions. Once a court finds that the relationship exists, in the event of a breach of duty and harmful outcome, the physician can be held liable.

It is also unclear whether the tort of abandonment could apply in the telemedicine context. It is suggested that physicians who wish to limit their services in a particular case should make that limitation clear to their patients from the start.

Informed consent

Another duty a physician owes to his or her patient is the duty of informed consent. The specific elements of this duty will again depend on the forum state's law. In Wisconsin, a physician must inform the patient about the availability of all alternate, viable medical modes of treatment and about the benefits and risks of these treatments. Wis. Stats., §448.30. The court will look to what a reasonable person in the patient's position would want to know in order to make an intelligent decision with respect to the choices of treatment or diagnosis.

Certain forms of telemedicine may be viewed as experimental or may carry a greater degree of risk because of the technology involved. Where a procedure is experimental, a court may hold that a physician is required to perform a more thorough informed consent. A full informed consent might also include an explanation of the differences between performing a face-to-face consult and one performed through video technology. For example, a remote physician will be unable to palpate a patient's skin or perhaps clearly view the skin color. Thus, it must be



explained to the patient that the exam will be limited by the technology. An explanation of the risks associated with an exam that does not include palpation would then be in order. The patient should sign a detailed informed consent form to document the extent of your discussions.

Conclusion

The use of telemedicine is growing at an astounding rate. Although it is a positive new form of health care delivery, physicians must be aware of the legal issues involved. To date, there have been only a few cases where a physician who used telemedicine has been sued for malpractice. These have been based on physicians who used teleradiology and subsequently misdiagnosed the patients' illness. However, as of yet, no malpractice cases have been reported where the technology of telemedicine itself has been on trial. Obviously, it is only a matter of time before this happens.



Your Financial Fitness



Is Your Life Insurance Up-to-Date?

Michael J. Dolan, CLU, ChFC

Did you buy life insurance when you first became a parent? If so, you've got lots of company. Have you looked at your life insurance coverage since? If not, you're also far from alone.

Life insurance can replace a lifetime's worth of income that would otherwise be lost when a wage-earner dies. But your life insurance needs aren't static. Just as you revise your investment plans and review your will to reflect changing circumstances, you should also take a fresh look at your life insurance as the years pass.

The two key questions are: How much life insurance do you need and what kind should you buy?

How Much Life Insurance is Enough?

You could rely on a rule of thumb that indicates an adequate level of life insurance is five to eight times your annual earnings. But income isn't the only factor. Your neighbor might earn a similar salary but be part of a childless two-income couple, while you might have three children and an aging mother. Your life insurance agent can help you conduct a personalized analysis of just how much insurance you need.

That analysis should include other assets that can throw off income for your family, such as an investment portfolio, as well as any group insurance you have through your job. When it comes to group insurance, though, be sure to ask whether you can keep it in force if you leave your job or retire. If not, and you will still need the insur-

ance it represents, buy an individual policy.

Which Kind of Life Insurance Should You Carry?

As a young parent, you may want to stock up on term life insurance. Term is "pure" insurance, with no cash value and no cash value component, but you can buy far more coverage for less money when you are young. Buy the kind of term policy that can be converted to permanent insurance later.

Term insurance makes the most sense when the need for life insurance is temporary. For example, you might need life insurance just long enough to see your teenage children through college or until the remaining 10 or 12 years on your mortgage are paid off.

If you want life insurance for more than 15 or 20 years, however, permanent insurance is the answer. You might buy permanent insurance if your family will need to pay estate taxes and their assets will be tied up in a family business or real estate. You might buy it if you need to protect children born when you are old enough that term insurance is no longer cost-effective. And you might want permanent insurance if your spouse or other dependents will not have enough other resources to maintain a comfortable lifestyle.

Permanent cash value insurance has a level premium, based on your age at the time of purchase. Variations include universal life and variable life. Your life insurance agent can help you decide which policy is best for you.

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2. The topic of the conference should have interest for a wide group of Wisconsin physicians who would have liked to attend, but the priority was not high enough, e.g., Alzheimer's Disease, AIDS.
3. The author should be the conference chair (or designee).
4. The report should focus primarily on what is “new and important” that can and should be used by the reader.
5. BRIEF is defined as six pages, double-spaced typing. In addition, the author may provide a one-page, double-spaced background statement as to why the content of the report is important for Wisconsin physicians.
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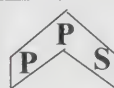
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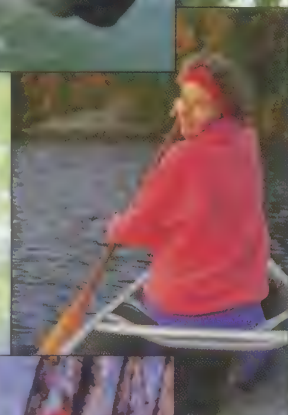
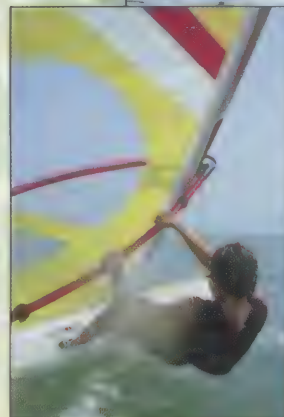
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Thoughts on... Medical Education

Lifelong Learning Touches Countless Lives

by Judith D. Burke, Director, Publications & Communications

When one looks at the ways in which physicians can remain active, for their entire lives, in the learning process, one clearly sees a tie to younger physicians and students. The two groups, at least in the education arena, go hand-in-hand. When we spoke with physicians, we found that many of them choose to volunteer their time to their young colleagues because of the sense of fulfillment they receive from sharing their clinical knowledge and life experiences. When we spoke with students and residents, every one of them mentioned the role of the mentor, the older, experienced physician, who took the time to work with them and oftentimes, helped them clarify which area of medicine they wanted to pursue. These mentors also offered the students a wealth of inspiration, motivation and a source of dedication unequalled in their formal education.

The *WMJ* is pleased to provide a look at the myriad ways medical education is being enhanced in Wisconsin. From the purely academic university setting, to the hands-on experience of field work, to the enthusiasm volunteer physicians exude, the issue offers a glimpse into the wealth of learning opportunities being exercised by SMS members.

We start with the *President's Page* column, *Medical Education for the 21st Century*, in which Sandra L. Osborn, MD, highlights many ways for you to become more involved in lifelong

learning (page 4). We feature very special Guest Editorials this month from the Deans of Wisconsin's two medical schools who address the innovative ways their institutions are preparing students for the future of medicine. *Preparing New Physicians for the Next Millennium*, by Philip M. Farrell, MD, PhD, Dean, University of Wisconsin Medical School and Alfred Dorrance Daniels Professor on Diseases of Children, offers a brief background on medical education in Wisconsin and shows us how the curriculum has changed to meet the demands today's students will face as future physicians (page 17). In *Professional Excellence and Traditional Ideals: MCW Moves Forward*, Michael J. Dunn, MD, Dean, Medical College of Wisconsin, reviews the challenges and opportunities facing both the students and faculty at MCW (page 19).

Our Focus on Medical Education section highlights the ways institutions around the state are working with both medical schools to place and keep medical residents in Wisconsin (page 24); a report on a special conference held last month for medical students on working with the under- and uninsured population (page 30); and more. The Wisconsin Medical Journal features papers on medical education and begins on page 37. Be sure to take the quiz on hepatitis C knowledge, part of *Faculty and Trainee Knowledge of Hepatitis C Infection at a Tertiary Care*

Medical Center (page 43); answers to the quiz will be published in the March issue. *From the Office of General Counsel* features a checklist of items which physicians need to consider when first opening a practice (page 67), and *Financial Fitness* offers a look at the celebrated new insurance product being offered only for SMS members.

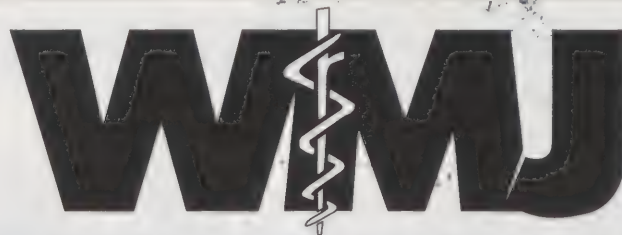
Countless opportunities offer physicians the chance to be involved in furthering their own educations, as well as the educations of medical students, residents, and even their patients. In preparing this issue, we heard over and over again that Wisconsin's medical education system is successful because of the commitment and dedication of all parties involved. The *WMJ* salutes all of you who take advantage of lifelong learning options.



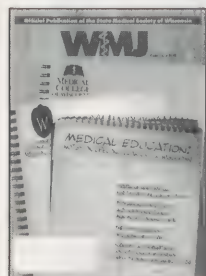
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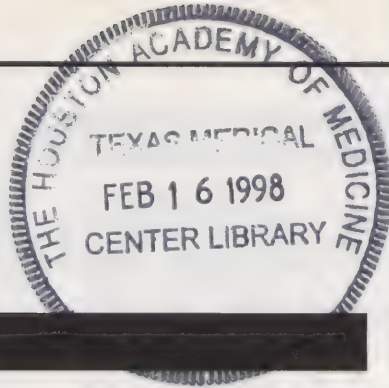
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President's Page

Medical Education for the 21st Century

by Sandra L. Osborn, MD

Exactly when a medical education begins is hard to define, but who the students are is easy. With the expanding availability of technology and information, everyone, both layperson and professional, must now, seemingly, receive a medical education. What differentiates the two groups, however, are the teachers and the venue.

Today, physicians have the responsibility to:

1. Train the next generations of professionals,
2. Filter and explain both general information and specific disease details to our patients and other consumers, and
3. Maintain our own skills and learn new developments by engaging in lifelong learning by participation in a broad variety of CME activities, which improves our ability to provide patient care of the highest possible quality, and through a supportive practice environment.



Medical Schools Changing

Profound changes are occurring in the health care delivery system. As managed care and technology continue to penetrate the health care environment, medical students must receive an education that prepares them for practice in such an environment.

Two years ago, the American Association of Medical Colleges (AAMC) recognized the potential consequences to academic medicine if students are not properly prepared, and established the Advisory Panel on the Mission and Organization of

Medical Schools (APMOMS). This panel of administrators and medical school faculty examined transformations occurring in the practice, science and social expectations of medicine to assess the implications of these changes on the missions and structures of American medical schools.

Their recommendations included points on: core values; adapting to the rapid changes in practice, science, societal expectations and constrained resources of medicine; and performing research and discovery that advance health. Specific points included were the need for students to be proficient in self-learning skills, the importance of communication skills and the ethics that underpin professionalism. The recommendations called for medical schools to include undergraduate, graduate, continuing, and public education in their missions.

Lifelong Learning

Continuing medical education for clinicians must promote on-going refinement of the training received as medical students and residents. Clinical decisions are made every day which require the application of medical technology (including laboratory and imaging) and pharmacology, as well as the need to be culturally competent. To state it simply, factors that affect physicians' medical decision making are highly complex. Today, constant learning is a necessity, and the options are many.

We are beginning to evaluate the clinical outcomes of our diagnoses and treatments. Medical outcomes research provides a means of using patient outcomes as a basis for improving physicians' education and practice. Outcomes data focuses on determining the best care for the patient and providing a better understanding by the patient about his/her health care. This is a relatively recent concept in CME. (Please see related article about a recent Glaxo-Welcome contribution to the SMS Foundation's Medical Outcomes Research Project on page 36.)

Organized medicine provides opportunities for continual learning, as well. The SMS regularly provides more traditional efforts by publishing peer-reviewed, original research in the *WMJ*, sponsoring conferences and seminars on practice management, and offering personal consultations with staff, in addition to various manuals and brochures. (See the 1997 Annual Report, the July *WMJ*, for a list.)

As we move toward a constant learning environment, the SMS is ready to assist you with your own continuing medical education and with patient education concerns. A letter, phone call (800-362-9080) or e-mail request to the appropriate person (see the 1997 Annual Report) will put you in contact with someone who is eager to help you.



John E. Patchett, JD

Members of an association choose to belong for a variety of reasons. Though their level of activity may differ, every member chooses every year to retain his or her membership in the organization when the membership statement arrives in the mail. It is during this annual process that members decide if the organization provides value and if it is relevant to their profession.

The State Medical Society has always enjoyed a very strong membership base among Wisconsin physicians. For many years, more than 80% of the state's physicians belonged to the SMS. Recently, we have seen a slight decline in the percentage of physicians in Wisconsin who are members even though the membership base has remained the same.

This is not really surprising given the dramatic changes that have taken place in health care delivery this decade. The SMS's membership has been caught in the volatile waves of change, as well. This month, David Kemp, SMS Deputy Executive Vice President and SMS Holdings Corporation President and Chief Operating Officer, updates you on the efforts we have underway to address the slowdown in membership growth by insuring value and relevance to Wisconsin physicians.



by David Kemp, Deputy Executive Vice President and SMS Holdings Corporation President and Chief Operating Officer

In 1997, we dramatically restructured the membership efforts of the SMS. Historically, staff concentrated on the existing members and their needs. The field staff spent the majority of their time visiting members and working with county medical societies. They are trained to provide a vast amount of information on topics ranging from the role of government in health care delivery to educational programs and services. This breadth of knowledge makes them the perfect first contact for non-members, so their roles will now include proactively communicating with non-members, clinics and specialty societies.

Staff Efforts in the Field

Since we consider the traditional activities of the field staff to be vitally important, we have devised a way to provide even more value to existing members and county medical societies by redirecting some of the time of other staff who are specialists in areas such as policy, legislative activity, and delivery issues. These senior staff members will be traveling around the state on a regular basis. We will continue to visit our members and attend county society meetings, and invite you to contact us if you, your clinic, or county medical society has a particular topic you want presented by an SMS expert.

Redirecting Services to Better Meet Your Needs

The Member Relations department has been through a transformation and I want to recognize Maureen O'Brien, Vice President of Membership & Professional Relations and her staff: Jean Fuller, Jim Reuter, and Steve Tylicki, for handling the changes so well. Speaking with non-member physicians and clinics about the benefits of membership in organized medicine requires a different set of skills than "preaching to the choir." They have dedicated themselves to the effort and I have seen a lot of growth throughout the year.

Many non-member physicians express surprise when they learn of the amount of services and products offered to SMS members. It is a one-on-one approach that allows us to share these benefits and is the most effective tool for recruiting new members.

Through the Board of Directors' input, research and physician feedback, it was clear that we needed to think about our membership more along the lines of how they practice medicine. The addition of Jean Fuller, a Wisconsin Medical Group Managers Association Board member and past clinic manager, has brought new insight for our Member Relations staff into the clinic setting. For example, the Education and Professional



Development Department, working in conjunction with Member Relations, has developed customized education packages for specific clinics and groups.

Utilizing Technology

Another area we have worked to improve concerns the way we handle membership information. The Membership Information department is responsible for processing your dues, information about where you practice, your clinic, and more. To continue to add value to our members, we are redirecting our efforts and installing a state-of-the-art database system so that we will be able to monitor your concerns, activities and interests. This new system will allow us to provide meaningful service to



you based on your individual needs. A recent example of this effort was the individual membership report cards you received last August. However, in order for us to work with you one-on-one to serve your needs, we must obtain more data from you to ensure that the information we are using is accurate. Our current membership information system has brought us a long way; but leaping to an individualized approach requires a vast overhaul of our system and the data held in that system.

It became very clear during the exhaustive needs analysis we conducted last fall that many of our current procedures should be revised to allow for dramatic streamlining of processes and potential cost-savings for the organization. In order to implement these changes and recognize the savings, we will, during the next few months, ask for information about you, your practice and your clinic. Please

help us to make sure that the information in our new system is accurate. It is with this information that we will be able to customize our efforts to meet your interests and needs, to help you play a vital role in the changing House of Medicine.

If you would like to provide further input into what the SMS can do for you, please feel free to call me at (800) 362-9080 or send me an e-mail at: DAVIDK@smswi.org.

Letter to the Editor

Athletic Trainers and Physicians Working with Students is no New Twist

I read with interest your article on "Rapids Clinic Provides New Twists to Sports Medicine" [December, 1997]. It appears that Drs. McDonough and Christie have started a strong program in Wisconsin Rapids utilizing athletic trainers and physicians at high school athletic events. As mentioned briefly in the article, this may be a "new twist" in some locales, but it has been in existence and is the standard for sports medicine in the larger metropolitan areas such as Milwaukee.

At the Sports Medicine Institute of Sinai Samaritan Medical Center we have provided certified athletic trainers to eight area high schools and colleges over the past 12 years. This includes daily or several days per week coverage to work with athletes and coaches at practices. We provide pre-season athletic screenings and physicals with individual guidance for each athlete and assist coaches with designing pre-season conditioning programs. Event coverage is just one portion of our athletic trainers' role in the schools. Orthopedic surgeons also

volunteer their time to cover high-risk events.

The article also mentioned the clinic's gym for patients to use once their formal rehab ends. We have also instituted a "FIT" program for our patients to work out at the Sports Medicine Institute in between therapy visits or after formal therapy has discontinued. We found that this not only cuts down on therapy charges, but also helps the patients learn independence in their rehabilitation and preventative, wellness programs.

In summary, we congratulate Drs. McDonough and Christie for their work in Wisconsin Rapids. Working with the schools and utilizing exercise and fitness equipment for patients may not be a new twist, but is certainly good orthopedic [medicine], good sports medicine and good rehab care.

—Deb Buntrock Yahr, Regional Manager Sports Medicine, Sports Medicine Institute, Sinai Samaritan Medical Center, Milwaukee

Correction

Two figures in the paper entitled, *Catheter Ablation of Atrial Flutter Using Radiofrequency Current: Cumulative Experience in 61 Patients*, Blanck, MD, et al, were misplaced (Vol. 97, No. 1, p. 43). Figure 1 and 3 were switched; the legends are correct. The WMJ regrets this error.



Harry M. Caskey, MD

Who's In The News

Profile of a Physician Citizen of the Year Award Winner*

The Physician Citizen of the Year award honors recipients for the uncompensated civic, cultural, economic, charitable, and health care services they have provided to their local or state communities, recognizing those who have given their time and talents to improve conditions in our state.

Implemented in 1982 as a colleague-nominated award, the Physician Citizen of the Year award's annual nomination process was opened to the public in 1991. The result was an overwhelming outpouring of admiration and affection for Wisconsin's physicians. Each year since then, based on these nominations, the State Medical Society's Commission on Public Information selects award recipients from various SMS districts in the state.

Harry M. Caskey, MD, of Clintonville, is one of eight 1997 SMS Physician Citizen of the Year Award recipients. In honor of Dr. Caskey receiving the award, Clintonville Mayor, Gib Johnson, declared August 9, 1997, as "Doctor Caskey Day." In addition to an official city proclamation presented by Mayor Gib, many of the three thousand people delivered by Dr. Caskey, an OB/GYN, were in

attendance proudly wearing "I'm a Caskey Baby" buttons.

Doctor Caskey was presented with his award on "Doctor Caskey Day" by SMS President Sandra L. Osborn, MD. In her Presidential Inaugural Address last April, Dr. Osborn challenged her colleagues to give back to their communities by donating one hour of their time. In her presentation on August 9, she held Dr. Caskey up as an example of what community advocacy means.

"Today, we are here to honor someone who has strong skills as an advocate and who is a role model for many of his colleagues and community members, someone who has given endless hours to making a difference and making our communities better," Dr. Osborn commented.

Some of Dr. Caskey's current and past activities for which he was nominated include: active membership with St. Martin Lutheran Church, Clintonville, including 11 years as an Adult Bible School and Christian Human Sexuality teacher and 15 years as an office holder; a past member of the Clintonville Board of Education; and 1977 recipient of the Citizen Award issued by the Clintonville Education Association.

In addition to the activities listed above, Dr. Caskey has dedicated much of his free time to youth athletics in Clintonville as a team physician. He was awarded the "Distinguished Service to High School Athletics" award by the Wisconsin Athletic Directors in 1983, and was honored with the "National Interscholastic Athletic Administrator Association Distinguished Service Award" in 1984 for his enthusiastic leadership and support in the field of Interscholastic Athletics. Only six of these awards are presented each year.



Doctor Caskey was nominated by fellow Clintonville citizen, Grace Kirchner, News Director for WFCL, WMJQ.

"Doctor Harry Caskey has given a lifetime of service to his country, community, church, profession, family, and schools with many of his efforts not rewarded financially. I can think of no one more worthy of the award," Kirchner stated in her nomination.

Doctor Caskey has been a member of the SMS for 48 years. He continues practicing at the La Salle Clinic in Clintonville where he specializes in general practice and obstetrics/gynecology.

*The 1997 SMS Physician Citizen of the Year Award was awarded to eight individuals around the state.

Who's In The News



Marcie Berger, MD



Alex Canda, MD



Manelle Fernando, MD



Nadine French, MD

Joseph Babiarz, MD, recently became a fellow of the American College of Surgeons during their meeting in Chicago. Doctor Babiarz practices at Central Wisconsin Urology Associates in Wausau where his primary interest is in female urology, incontinence and urologic cancers. He earned his medical degree from the University of Michigan, Ann Arbor and completed his residency at Henry Ford Hospital, Detroit, MI.



Marcie Berger, MD, a cardiology fellow at the Medical College of Wisconsin, has been selected by the American College of Cardiology as one of five competition finalists for the national Young Investigator Award in Physiology and Pharmacology. Doctor Berger's research focused on identifying new drug targets in human coronary arteries which may be activated to improve blood flow to the heart. Earlier this year, she won a Midwest Physiological Society Presentation Award. She completed her internal medicine residency at the Medical College where she won the Charles Junkerman Award as outstanding senior medical resident and the department of medicine's Intern of the Year Award. Doctor Berger earned her medical degree from the University of Wisconsin Medical School.

Timothy R. Boyle, MD, an otolaryngologist with the Marshfield Clinic, became a Fellow of the American College of Sur-

geons at its recent meeting in Chicago. Doctor Boyle's primary interest is in rhinology and cancer of the head and neck. He received his medical degree from the University of Iowa, Iowa City.

Todd Bradshaw, MD, a family physician, joined the Associated Family Physicians practice of Community Health Network in Berlin. A graduate of the Medical College of Wisconsin, Dr. Bradshaw completed a residency at the Community Hospital Family Practice in Indianapolis, IN.

Brian C. Campion, MD, president and CEO of Franciscan Skemp Healthcare, announced his retirement in December, 1997. A graduate of the University of Minnesota Medical School, Doctor Campion completed a residency in internal medicine and a fellowship in cardiology at Mayo Clinic. Doctor Campion is a Fellow of the American College of Physicians, Council on Clinical Cardiology-American Heart Association and the American College of Cardiology.

Alex C. Canda, MD, an Aurora Medical Group physician with Badger Health Center, earned the status of Diplomate in internal medicine as conferred by the American Board of Internal Medicine. Doctor Canda earned his medical degree from the University of Santo Tomas, Manila, Philippines and completed his residency at Mercy Hospital and Medical Center, Chicago, IL.

David A. Cleveland, MD, an emergency medicine specialist, became board certified by the American Board of Emergency Medicine. He earned his medical degree from the Medical College of Wisconsin and completed a residency in internal medicine at Marshfield Clinic. Doctor Cleveland also is a Diplomate of the American Board of Internal Medicine.

Manelle N. Fernando, MD, of Footville, completed the requirements to earn the board certified status of Diplomate of the American Board of Bariatric Medicine. Doctor Fernando becomes the 162nd physician who has earned this honor and designation. Doctor Fernando specializes in bariatric medicine, medically-supervised weight control and treatment of obesity. She earned her medical degree at the University of Ceylon, Colombo, Sri Lanka.

Nadine French, MD, a family physician, joined the UW Health-Portage Community Clinic. She received her residency training in family medicine and medical degree from Memorial University of Newfoundland in St. John's, Canada. Prior to moving to Portage, she practiced family medicine and obstetrics at Newfoundland Drive Family Practice in St. John's.

David Go, MD, a family physician, joined Aurora Health Care's newest facility, Marinette-Menominee Clinic in Peshtigo. Doctor Go earned his medical degree from Far Eastern Univer-

Who's In The News



Grace Heitsch, MD



Humayun Khan, MD



Mahendr Kochar, MD



Thomas Kowalski, MD

sity, Manila, Philippines and completed his residency at Brookdale Hospital Medical Center, Brooklyn, NY.

Kevin R. Green, MD, a family physician, became a certified Federal Aviation Administration aeromedical examiner. While serving in the U.S. Air Force, he was chief of flight medicine at Edwards Air Force Base in California and frequently flew with the F-16 pilots to better understand what the pilots experience during flight. Doctor Green earned his medical degree from the University of Iowa, and completed his residency at Scott Air Force Base, IL. Doctor Green currently is practicing at Mercy Oakwood for the Aurora Medical Group in Oshkosh.

L. Fraser Guy, MD, a psychiatrist, joined Lakeshore Mental Health and Physicians' Health Network. Doctor Guy specializes in panic and anxiety orders. He earned his medical degree at the University of Virginia, interned at Fairfax Hospital in Falls Church, VA, and completed a psychiatric residency at the University of Rochester Medical Center and Strong Memorial Hospital in Rochester, NY.

Stephen Hargarten, MD, a nationally-recognized injury prevention and control advocate and researcher, was named chairman of the department of emergency medicine at the Medical College of Wisconsin. Doctor Hargarten has performed extensive research on motor vehicle deaths, seat belt use and firearm

injuries. He was awarded a grant in November, 1997, by the Joyce Foundation to establish the nation's first Firearm Injury Center at the Medical College. The Center will be a research resource, collecting and interpreting data that will have national implications. He will be representing the American College of Emergency Physicians as consumer co-chair of the National Advocates for Highway and Auto Safety in 1998.

Grace Heitsch, MD, a pediatrician at Duluth Clinic-Ashland, received a legislative citation from State Senator Bob Jauch in recognition of being named Wisconsin's 1997 Pediatrician of the Year. Doctor Heitsch is a strong advocate of strengthening health care programs in schools, has taught health classes in Ashland, and organized a bicycle helmet program. Doctor Heitsch was selected as one of the recipients of the 1993 Physician Citizen of the Year Award given by the State Medical Society. She earned her medical degree at the University of Minnesota Medical School and completed a residency at Marshfield Clinic and St. Joseph's Hospital in Marshfield.

Kurt Heyrman, MD, an Appleton pediatrician, led a volunteer team of 21 doctors, nurses and support personnel from northeast Wisconsin on their fifth trip to Flores, Hon-

duras. During their two-week stay, they treated more than 1,000 poverty-stricken families. Supplies were donated from area hospitals and clinic for this mission to Honduras.

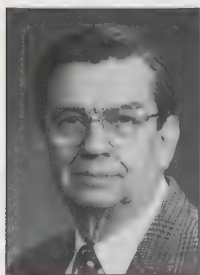
Humayun Khan, MD, an internist, joined the staff of Marshfield Clinic-Eau Claire Center. Doctor Khan received his medical degree from Universidad Technologica de Santiago in Santo Domingo, Dominican Republic and completed his residency at Sinai Samaritan Medical Center, Milwaukee.



John Kirsch, MD, Door County Memorial Hospital orthopedic surgeon, completed the first knee replacement in Yaroslavl, Russia during his trip in October, 1997. The operation in Yaroslavl merited a full-scale press conference — seven newspaper stories and television cameras aired several segments. Doctor Kirsch has made eight trips to Russia and is already planning for his ninth.

Mahendr Kochar, MD, associate dean for graduate medical education and professor of medicine and pharmacology/toxicology at the Medical College of Wisconsin, has been selected to receive the Milwaukee Academy of Medicine's 1998 President's Award. The award is given to a member who has "immeasurably enriched the Academy by their presence, work and personification of its motto - *non nobis nascimur - we are not born unto ourselves.*" Doctor Kochar is

Who's In The News



William Myers, MD



William Scheckler, MD



Sridhar Vasudevan, MD



Marwood Wegner, MD



Robert Wheaton, MD

also chief of hypertension and associate chief of staff for education at the VA Medical Center-Milwaukee, a consultant to Froedtert Hospital, and internationally-known hypertension researcher.

J. Brent Kooistra, MD and **Allan Luskin, MD**, allergists with Dean Medical Center in Madison, began providing allergy/immunology care at Medical Associates of Beaver Dam.



Doctor Kooistra received his medical degree at Michigan State University and earned a fellowship in allergy/immunology at the University of Wisconsin. **Doctor Luskin** received his medical degree at the University of Illinois and earned a fellowship in allergy/immunology at Max Samter Institute of Allergy and Immunology in Chicago.

Chad Kort, MD, a surgeon with Lakeland Surgical Center in Elkhorn, was a member of a medical team which spent a week in September, 1997, providing care to the people of Los Alcarios in the Dominican Republic. The group completed approximately 40 surgical cases ranging from hernias to gall bladder removal.

Thomas Kowalski, MD, a pediatrician, was elected president of the Medical Society of Milwaukee County. Also elected at their meeting were, **Ron Stark, MD**, president-elect; **Richard Holdach, MD**, secretary/treasurer; and **Catherine Slota, MD**, **George**

Lange, MD, **Richard Kane, MD**, **Susan Kaehler, MD**, **Thomas Palmer, MD** and **John Petersen, MD**, directors.

Joseph Lamb, MD, a family physician from LaSalle Clinic-Menasha, was part of 9-member team that provided medical care to the village of Dumay, Haiti in November. Through Adopt-A-Village-Mission they helped more than 500 patients who presented with complaints of high blood pressure, stomach pains, headaches, and poorly-healed fractures. For most residents of Dumay, this is the only medical care they receive.

Gary Leo, DO, a neurologist, was recently elected to the Class of 2000 by the National Multiple Sclerosis Society's Wisconsin Chapter Board of Trustees. Doctor Leo is associated with St. Joseph's Hospital in Wauwatosa and serves on the SMS Geriatric Health Commission.

A. Gale Murty, MD, a family physician, joined the Red Cedar Clinic in Elmwood. For the past two years, she has held a Bush Medical Fellowship with emphasis on geriatrics. Doctor Murty received her medical degree at the University of Minnesota and served her residency at St. Paul Ramsey Medical Center.

William Myers, MD, a cardiovascular and thoracic surgeon from Marshfield Clinic, was named president-elect of the

Frederick A. Collier Surgical Society. The society promotes the science and art of surgery, including education, research and fellowship among surgeons. Doctor Myers received his medical degree from Northwestern University Medical School. He completed residencies in anesthesiology from the City of Detroit Receiving Hospital at Wayne University Medical School; a surgery residency at Sacred Hospital, affiliated with the University of South Dakota; general surgery and thoracic surgery residencies, both at Kansas University Medical Center.

Roger Natwick, MD, retired after 34 years of service to the community of Menomonie. Along with four other physicians, Doctor Natwick built the present Red Cedar Clinic. He founded one of the first and finest hospitals in Cambodia and also a mission hospital in Bongo-la, Gabon, a country on the west coast of Africa where he spent a month working as a surgeon five years ago. Doctor Natwick earned his medical degree from Tufts University School of Medicine, Boston, MA, and internship/residency at Akron General Hospital and St. Thomas Hospital, Akron, OH.

Steven Pals, MD, an orthopedic surgeon, recently became a Fellow of the American College of Surgeons during the college's recent annual Clinical Congress in Chicago. He also belongs to the Fellowship in the American

Who's In The News

Academy of Orthopaedic Surgeons, the Wisconsin Orthopaedic Society, and Midwest Orthopaedic Society. Doctor Pals received his medical degree from Tufts University School of Medicine, Boston, MA and is currently practicing at Beaver Dam Orthopaedic Clinic, Ltd.

Abraham Rodriguez, MD, a pediatrician at Beloit Clinic, recently joined the medical staff at Beloit Memorial Hospital. Doctor Rodriguez earned his medical degree at the University of the East Memorial Medical Center in Manila, Philippines and completed his pediatric residency at the Long Island College Hospital in New York.

Karl A. Rudat, MD, an obstetrician and gynecologist with Dean Clinic, will be working closely with primary care physicians in the Portage area to provide high-risk obstetric consultations and gynecological services at Portage Clinic and Divine Savior Hospital. Doctor Rudat earned his medical degree from the University of Wisconsin Medical School and served his internship and residency at the Medical College of Virginia.

William E. Scheckler, MD, a family physician who has dedicated much of his career to preventing and controlling infections acquired in hospitals and nursing homes, has been appointed to the Hospital Infection Control Practices Advisory Committee of the Centers for Disease Control. Doctor Scheckler was invited to serve on the committee by Donna Shalala, U.S. Secretary, Department of Health and Human Services. The CDC committee plays a key role in developing and updating guidelines and other policy statements on the prevention of hospital-acquired infections.

John Twelmeyer, MD, an obstetrician/gynecologist at Marshfield

Clinic-Lakeland Center, was named a Fellow of the American College of Obstetricians and Gynecologists. The organization serves as an advocate for quality health care for women; maintains high standards of clinical practice and continuing education for its members; promotes patient education; and increases awareness among its members and the public of the changing issues facing women's health care. Doctor Twelmeyer earned his medical degree from the Medical College of Wisconsin.

Sridhar V. Vasudevan, MD, was re-elected to the Board of Governors of the American Academy of Physical Medicine and Rehabilitation at their meeting in Atlanta, GA. He also received an appointment to the Academy's Education and Research Fund Management Committee where he will serve as treasurer. Doctor Vasudevan specializes in physical medicine and rehabilitation and pain management and is a clinical professor at the Medical College of Wisconsin.

Marwood Wegner, MD, a family physician, is "hanging up his stethoscope," retiring after 42 years of service in the community of St. Croix Falls. In addition to his many contributions in the medical field, he found time to serve as president of the St. Croix Falls school board in the 1960s, was a member of the SMS Board of Directors for nine years, and currently serves on St. Croix Valley Memorial Hospital's Board of Directors.

Nola Westphal, MD, a family physician, joined the medical staff of the Red Cedar Clinic, Glenwood City. Doctor Westphal earned her medical degree at the University of Minnesota-Duluth and completed her family practice residency at UW-Eau Claire Family Practice Residency Program.

Robert C. Wheaton, MD, a Burlington family physician, was honored for 35 years of membership in the American Academy of Family Physicians at its recent meeting in Chicago. Doctor Wheaton earned his medical degree from the University of Wisconsin Medical School and completed his residency at the University of Texas Hospital, Galveston, TX.

Welcome New Members

The individuals listed below were recently elected to SMS membership by their county medical societies. We are pleased to welcome them to the SMS.

Brown

Joan M. Crennan, MD
Gary Leong, MD
Timm S. Missbach, MD

Fond du Lac

John M. Billinsky, Jr., MD
Jerry C. Evans, MD
Michael Wayne Jones, MD
Todd J. Van Blaricom, MD

Iowa

John M. Lehman, DO

Monroe

Matthew E. Ulven, MD

Ozaukee

Anna Renate Flynn, MD
Janet B. Goldman, MD
Richard K. Karr, MD

Pierce-St. Croix

Mark J. Giovanelli, DO

Portage

Langston B. Cleveland, MD

Sauk

Jonathan B. Morey, MD



Continued on p. 21

In Remembrance

Bischof, Henry F., MD, 79, a family physician and surgeon from Lake Geneva, died December 1, 1997. Doctor Bischof earned his medical degree from the University of Illinois at Rush Medical School and served his internship at Madison General Hospital. In 1946, he joined two other physicians to form the Lake Geneva Clinic. Doctor Bischof served as a major in the U.S. Air Force as the base surgeon at L.G. Hanscom Field in Bedford, MA from 1955 to 1957. He returned to Lake Geneva after the Air Force and continued to practice at the Lake Geneva Clinic until his retirement in 1983.

Doctor Bischof was a member of the American Medical Association, the State Medical Society, and Walworth County Medical Society. He was also a member of the SMS Fifty Year Club.



Doctor Bischof is survived by his wife, Marjorie; three sons, James, of Madison; William, of Delafield; and Charles, of Allegany,

NY; eight grandchildren; and one sister, Elinor Kreihn, of Indianapolis, IN.

Freeman, William S., MD, 72, a pediatrician from Beloit, died December 22, 1997. Doctor Freeman earned his medical degree from Northwestern Medical School in Chicago, and completed a residency in pediatrics at Children's Memorial Hospital in Chicago, where he was chief resident. Doctor Freeman practiced at the Beloit Clinic for 33 years, before retiring in 1987. He served his community in several ways, from membership in the Rotary Club to serving on boards for the YMCA, Family Service Association, Association of Commerce, Beloit Library, and the Library Advisory Commission.

Doctor Freeman is survived by his wife, Katharine; five children: John, of Paola, KS; Scott, of Seattle, WA; Robert, of

Cedar Rapids, IA; Nancy Wallace, of Brooklyn; and Judith Mills, of Seattle, WA; 12 grandchildren; three step-children: Douglas Scott, of Janesville, Sarah Starmer, of Roscoe, IL, and Elizabeth Singles, of Beloit; and six step-grandchildren.

Moir, Jane M., MD, 82, one of Sheboygan's first female physicians, died December 19, 1997, at the Milwaukee Protestant Home. Doctor Moir earned her medical degree from the University of Wisconsin. She was elected to Phi Beta Kappa and Alpha Omega Alpha, honorary fraternities for academic excellence while at the university. She was an anesthesiologist at Sheboygan Memorial Hospital and St. Nicholas Hospital until her retirement. In addition, she was instrumental in establishing family planning services in Sheboygan County in the late 1960s. Doctor Moir served on the Board of Directors for Planned Parenthood of Wisconsin and was honored with the Margaret Miller Award in 1989 for her work in family planning.

Doctor Moir is survived by her husband, William; two children: Barbara Condos, of Chevy Chase, MD, and William, of Sheboygan; and five grandchildren.

Sauter, Kendall E., MD, 78, a general and vascular surgeon, died on December 16, 1997. Doctor Sauter earned his medical degree at Marquette University and completed his internship and residency at Milwaukee County Hospital. He was past president of the Milwaukee Academy of Surgery, secretary/treasurer of the Wisconsin Chapter of the American College of Surgeons, member of the Wisconsin Surgical Society, Medical Society of Milwaukee County, and Fellow of the American College of Surgeons. Doctor Sauter was also a delegate to the SMS House of Delegates.

Doctor Sauter is survived by his wife, June; five children: Judith Titcomb, Kristin E-Afshar, Bruce, Gail Poschung, and Douglas, an MD; and eight grandchildren.

Twohig, David J., MD, 84, a family physician, died on December 19, 1997. Doctor Twohig earned his medical degree from the University of Wisconsin Medical School. Upon graduation he joined his father and uncles at the Fond du Lac Clinic where he practiced until his retirement in 1976.

He served on the staff of the Theater Surgeons in the European Theater during World War II where he was in charge of the movement and evacuation of patients from the European Theater. He was decorated by both the U.S. and British governments for this service. The King of England made him an honorary member of the British Empire.

Doctor Twohig was a member and past president of the Fond du Lac County Medical Society and for many years was its delegate to the SMS House of Delegates. He also served on many SMS committees. He was a member of the American Medical Association, and a member and past chief of staff and chief of surgery at St. Agnes Hospital. He served two terms on the state board of medical examiners, to which he was appointed by Gov. Warren P. Knowles. Doctor Twohig was a member of the Knights of Columbus, the American Legion, the Elks Club, and several other community organizations. He also was a member of the SMS 50 Year Club.

Doctor Twohig is survived by his wife, Elizabeth; four children: Philip, of Fond du Lac; Barbara Haley, of Highland Park, IL; Kathleen DeVries, of Menomonee Falls; and Rosemary Reuter, of Germantown; 10 grandchildren; three great-grandchildren; seven step-children: Louise Townes, of Portland, OR; Catherine Bittner, of Green Bay; Ann Halama, of Independence; Beth Feldner, and Sara Diener, of Fond du Lac; Paula Hilbert, of Sheboygan; and Doctor Joseph Hammang, of Barrington, RI; 18 step-grandchildren, and three step-great-grandchildren. He was preceded in death by a son, David.

Nominees for SMS Offices: 1998-1999

Candidate for President-Elect — 1998-1999

Jack M. Lockhart, MD



Jack M. Lockhart, MD, of La Crosse, is board certified in internal medicine and rheumatology. Doctor Lockhart graduated from Harvard Medical School and served an internship at University Hospitals of Cleveland, Cleveland, OH. He completed fellowships at the University of Minnesota Medical School in Minneapolis where he was an instructor from 1976-1977, and has been a clinical lecturer with the University of Iowa since 1982.

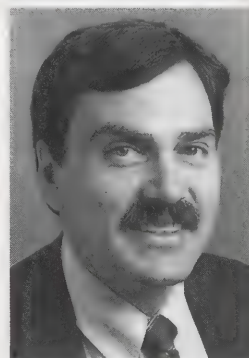
Doctor Lockhart, an active member of the SMS for almost twenty years, was elected SMS Treasurer in 1997. He also served as a delegate to the SMS House of Delegates and has been a member of the Board of Directors since 1989, where he has served on the Finance Committee (1989-present) and the Nominating Committee (1986-1990). He served on WISPAC's Board of Directors, and was a member of the Physicians Alliance (now Governmental Affairs) Commission for nine years. In addition, he has held numerous leadership positions with Gundersen Clinic/Lutheran Hospital, La Crosse, where he is Chair of the Department of Internal Medicine (1993-present). Doctor Lockhart also served as the President of the La Crosse County Medical Society (1993-1994).

In a letter nominating Dr. Lockhart for President-Elect, Gary L. Bryant, MD, of the La Crosse County Medical Society stated, "Hard work, dedication, commitment, a sense of priorities, acknowledgment

of the skills and contributions of others, and a sense of humor are all skills desired in a leader. Doctor Lockhart possesses these as well as many other skills, and is the natural choice to lead the State Medical Society of Wisconsin."

Candidate for Treasurer — 1998-1999

Bradley L. Manning, MD



Doctor Manning, whose specialty is plastic and reconstructive surgery, graduated from the University of Illinois College of Medicine and completed his general surgery and plastic surgery residencies at the University of Wisconsin-Madison. He served as a trustee and president of the Dane County Medical Society, was chair of the department of surgery, and is president of medical staff at Meriter Hospital, Madison.

Doctor Manning served on the SMS Task Force on Health Care Reform, and was a delegate to the SMS House of Delegates. Currently, he serves on the Board of Directors and is a member of the Health Care Financing and Delivery Commission, and the Public Information Commission.

Candidate for Vice Speaker of the House of Delegates 1998-2000

Kevin T. Flaherty, MD



Kevin T. Flaherty, MD, received his medical degree from Loyola University in Chicago. He completed his internship at Sacred Heart Medical Center in Spokane, WA, and his ophthalmology residency at

Loyola University. He is board certified and is a Fellow of the American Academy of Ophthalmology and the American College of Surgeons. Doctor Flaherty is the former medical director for North Central Health Protection Plan, a cooperative health plan of

Wausau Insurance.

Doctor Flaherty was elected as an Alternate Delegate to the Wisconsin delegation of the AMA in 1994. He served as President (1994-1996) and is a member of the Executive Committee (since 1992) of the Marathon County Medical Society. Previously, he served as the Marathon County Medical Society delegate to the SMS House of Delegates. He has chaired reference committees for the Young Physicians Section of the AMA and SMS, and has served on the SMS Task Force on Quality Assessment and Practice Parameters since 1991 (now the Medical Outcomes Research Project).

Doctor Flaherty has served as Vice Speaker of the SMS House of Delegates since 1996. Additionally, he remains active in other professional societies and sits on the American Academy of Ophthalmology Committee on Relations with Organized Medicine (since 1993).

Candidates for AMA Delegate 1999 and 2000

Cyril M. Hetsko, MD



Doctor Hetsko, SMS president from 1991-1992, graduated from the University of Rochester School of Medicine and Dentistry and completed his internship and residency and was chief resident at the University of Wisconsin Hospitals.

Doctor Hetsko served as chair of the SMS Task Force on AIDS since 1987. In addition, his SMS activities have included: vice speaker of the House of Delegates; member, Task Force on RBRVS, Strategic Planning Committee and Task Force on Physician Discipline and Review; and member of the Board of Directors from 1978-1987 and from 1993 to 1997; he is also past chair of the Board's Finance Committee.

Doctor Hetsko has been a member of the Wisconsin delegation to the AMA since 1983, and is currently chair of the delegation. He was president of the North Central Medical Conference from 1995 to 1996, and was elected to the AMA Council on Medical Service in 1995.

He is a past chair of the Department of Medicine at St. Marys Hospital Medical Center, Madison, and was a member of the Board of Directors of Dean Care HMO from 1983 to 1994.

Doctor Hetsko received the Presidential Award from the Dane County Medical Society and the SMS Meritorious Service Award. He currently serves as secretary-treasurer and was past trustee of the American Society of Internal Medicine, is a member of the Commission on Office Laboratory Accreditation, and is a clinical professor with the University of Wisconsin-Madison Medical School. Doctor Hetsko is a Fellow of the American College of Physicians.



Kevin A. Jessen, MD



Kevin A. Jessen, MD, is a board certified family physician with the Gundersen Lutheran-Tomah Clinic, where he has been medical director since 1990. He served on the Gunderson Lutheran Board of Directors for 11 years. He graduated from the University of Minnesota Medical School and completed a three-year family practice residency at the Borgess Medical Center and Bronson Hospital under the Southwestern Michigan Area Health Education Center in Kalamazoo, MI. Doctor Jessen has been an AMA Alternate Delegate since 1993. He was also a member of the SMS House of Delegates Nominating Committee from 1990 to 1993.

Robert F. Purtell, Jr., MD



Robert F. Purtell, Jr., MD, is a family physician in Milwaukee. He received his medical degree from Marquette University in 1961; completed a general internship at Misericordia Hospital, Milwaukee; and a general surgery residency at St. Joseph's Hospital in Milwaukee. He is board certified in family practice, and holds an Assistant Clinical Professorship in the Department of Family Medicine at the Medical College of Wisconsin.

His memberships include: American Academy of Family Physicians (AAFP), 1962-present; Medical

Society of Milwaukee County, 1962-present; American Medical Association, 1962-present; Wisconsin Academy of Family Physicians, 1962-present (President 1979-1980); and Foundation for Medical Care Evaluation, Southeastern Wisconsin, 1974-1978. He has held numerous leadership positions with these organizations.

Doctor Purtell joined the SMS in 1962. He currently serves as a member of the Executive Committee of the Board of Directors and he was a member of the Nominating Committee from 1986 to 1994, which he chaired from 1989-1990. He was chair of the SMS Federal Legislative Policy Committee from 1977-1985, chair of the Physicians Alliance Commission from 1985-1989, and a member of the Governmental Affairs Commission from 1978-1985.

Candidates for AMA Alternate Delegate 1999 and 2000

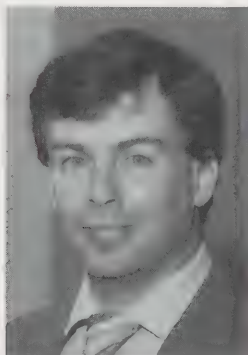
Ali K. Choucair, MD



Ali K. Choucair, MD, a neurologist/neuro-oncologist with the Marshfield Clinic for the past 12 years, received his medical degree from the University of Calgary School of Medicine, Calgary, Alberta, Canada, and served an internship and residency in general internal medicine at Foothills Hospital, Calgary. He also completed a neurology residency with the University of Utah Medical Center, Salt Lake City, UT, and fellowships in neuro-oncology at the University of California, San Francisco, and at the Brain Tumor Research Center.

Doctor Choucair was a delegate and an alternate delegate to the SMS House of Delegates. He has also served on several reference committees and was chair of the Scientific Reference Committee in 1997. Doctor Choucair is a member of the SMS Nominating Committee and a member of the SMS Task Force on Governance Structure. He also served as president of the Wood County Medical Society.

Timothy G. McAvoy, MD



Doctor McAvoy graduated from New York Medical College, New York, NY. Specializing in internal medicine and emergency medicine, Dr. McAvoy served his internship at Boston City Hospital. His residency was completed at Boston City Hospital and the University of Wisconsin Hospital and Clinics in Madison. Doctor McAvoy has been a member of the SMS Board of Directors since 1990. He served as president of the Waukesha County Medical Society. He has been an SMS Alternate Delegate to the AMA since 1997.

John E. Ridley, III, MD



John E. Ridley, III, MD, a Milwaukee-based ophthalmologist, is an Assistant Clinical Instructor in Ophthalmology at the Medical College of Wisconsin. Doctor Ridley received his medical degree from the Indiana University Medical School and completed a rotating internship at the Detroit Receiving Hospital and an ophthalmology residency at the Marquette School of Medicine.

Doctor Ridley served on the SMS Board of Directors from 1990 to 1996, and has served as a Medical Society of Milwaukee County delegate to the SMS. He is also past president of the Milwaukee Ophthalmological Society.



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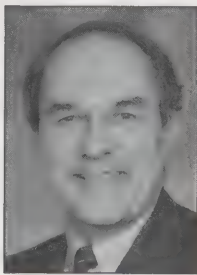
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Preparing New Physicians for the Next Millennium

by Philip M. Farrell, MD, PhD

Dean, University of Wisconsin Medical School, Alfred Dorrance Daniels Professor on Diseases of Children

Medical education is a continuous learning process that must lead to acquisition of knowledge, skills, and professionalism. The traditional four components of this lifelong learning process include premedical education, undergraduate medical education, graduate medical education

Philip M. Farrell, MD, PhD, joined the UW Department of Pediatrics as an Assistant Professor in 1977, and began an affiliate faculty appointment in the Department of Nutritional Sciences in 1981. He became Chairman of Pediatrics in 1985. In 1988, he was appointed Medical Director of the University of Wisconsin Children's Hospital and in 1991, Chairman of the Board of Directors of University Health Care, Inc. In November, 1994, Dr. Farrell was appointed Interim Dean of the UW Medical School and was subsequently named Dean in 1995 after a national search was completed. He belongs to numerous professional organizations and serves on a variety of national committees and boards.

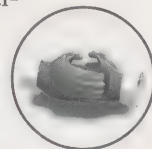
While serving on the UW faculty, Dr. Farrell's academic and clinical activities have emphasized neonatology and pulmonology. He directed research programs investigating metabolic and nutritional aspects of potentially fatal respiratory diseases that occur in infants and children.

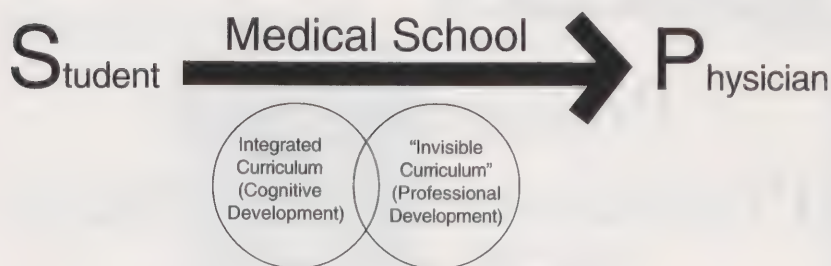
(residency training) and post-graduate (continuing) medical education. Formal learning experiences in medical school serve to supplement the personal attitudes and attributes such as compassion and altruism that are the *sine qua none* of successful medical practitioners. In recent years, as the impact of generalist/specialist imbalance has become recognized and U.S. health care has become increasingly organized into business corporations, most medical colleges in general, and the University of Wisconsin Medical School in particular, have undergone dramatic changes in the ways they prepare future physicians. Primary care education has emerged as a dominant theme and is required for accreditation. In addition, fostering professional development and ethical integrity are ultimately as important as acquisition of knowledge and skills.

It is ironic that the end of the 20th century with managed care predominance has raised concerns about medical practice and education that are similar to those that led to the Flexner Report in 1910. The profession is threatened by profit-oriented, domineering business interests, and medical colleges are at risk of becoming "trade schools."

The Flexner Report stimulated enhancement of medical colleges by emphasizing the value of the "university type" environment and the importance of academic/clinical balance in which the creation and transfer of medical knowledge occur synergistically with patient care.

Abraham Flexner visited Madison in 1909 and recommended that the two-year school underway at that time be transformed into a complete, four-year medical college in accordance with the plan conceived in 1848 as part of the enabling legislation for the University of Wisconsin. This transformation was achieved in 1925/1926 with the construction of Wisconsin General Hospital to provide a teaching hospital for medical students and house officers. Fortunately, in retrospect, our first Dean (Charles Bardeen, PhD), in collaboration with community practitioners around the state, concluded that complete medical education required community-based training with preceptors as well as the university's inpatient environment. Since 1926, our fourth year preceptorship in the "real world of medical practice" has served as the capstone of the community learning experiences





for UW Medical School graduates.

Throughout most of its history, the UW Medical School has featured the traditional model of two preclinical years of basic science instruction followed by two years of clinical training. Since 1990, an intensive process of curriculum evaluation and reform has resulted in many integrated courses and an emphasis on active learning and problem solving exercises in small group sessions, as described

further in Dr. Susan Skochelak's editorial.

Our current medical educational philosophy is illustrated above and is somewhat analogous to an enzymatic reaction in a metabolic pathway. The starting point is student selection, the essential "substrate" for the learning and career development processes. As stated in the LCME Accreditation Manual entitled "Functions and Structure of a Medical School," it is clear that "medical schools must strive to select students who possess the intelligence, integrity, and personal emotional characteristics that are perceived necessary for them to become effective physicians." The capacity to acquire and synthesize knowledge efficiently, the ability to gain technical skills, and the intrinsic personal attributes must all be assured at the time a student is selected for an optimal "product" (new physician) to emerge. Consequently, optimizing admissions policies and procedures is a

vital part of continuous quality improvement in medical education. In essence, the time in medical school accelerates the acquisition of knowledge, skills, and professional development, but the personal and cognitive preparation are a precondition to success, just as the right substrate is essential for a successful enzymatic reaction. The medical school component of the pathway, therefore, serves as a catalyst for lifelong learning with an integrated curriculum for cognitive development and an "invisible curriculum" for professional development; the latter element, as emphasized by Dr. Edward Hundert, provides a supportive environment with role model physicians inspiring and mentoring students. Recognizing this relationship, the UW Medical School has a longstanding commitment to premedical education and innovative career development pathways such as the Medical Scholars program (see page 34). Because of the importance of lifelong learning, we also feel that both premedical and medical students must "learn how to learn" and then build on their knowledge through postgraduate continuing medical education.

Perhaps the most innovative and significant recent development of the UW Medical School curriculum has been the Generalist Partners Program (GPP) which provides all medical students with a comprehensive generalist core curriculum through clinical experiences, interactive faculty presentations,

and small group discussions during the first two years of medical school as the first component of a comprehensive longitudinal generalist curriculum. Our students are involved in the offices of primary care practitioners during their first year — in fact, within one month after orientation. These exposures provide inspiration and motivation for basic science learning.

Nevertheless, the essence of medical practice, no matter how it's organized and delivered to populations of people, will always be the encounter between the doctor and the patient. Medicine is the most interpersonal, communication-intensive profession. Communication skills, therefore, receive special attention in our new curriculum. A four-semester "Patient, Doctor and Society" course addresses the art and science of patient communication, physical examinations, ethics and cultural diversity. Communication and sensitivity are also central to new workshops on death and dying, and how to deliver difficult news to patients and their families. In addition, evaluation of clinical skills, including technical ability, has reached a stage in which standardized tools are being utilized. This includes the objective-structured clinical examination (OSCE), given to UW students during their third year by the Departments of Medicine and Family Medicine. OSCE's consist of several different situations requiring students to perform tasks such as writing an admission, a progress note, evaluating a blood smear, EKG or X-ray, or taking a history.

Predicting future medical practice is difficult, particularly since we are immersed in continuously evolving health care

Continued on p. 20



Professional Excellence and Traditional Ideals at MCW

*by Michael J. Dunn, MD, Dean,
Medical College of Wisconsin, Milwaukee*

American college students remain bullish on medical education! Applications to medical schools in 1997 were made by approximately 45,000 men and women in America's colleges and universities. The applicant pool for the Medical College of Wisconsin for our current first-year class included 6,500 applications, from which we were able to accept approximately 100-105 Wisconsin students and 100 out of state applicants. Our class comprises 38% women, 10% under-represented minorities, and almost 50% of the out-of-state students are from California. Academic qualifications of these students have never been higher with mean grade point averages of about 3.6 and mean Medical College Admission Test scores of 10. These academic

qualifications place the Medical College of Wisconsin students at the median percentile among applicants to U.S. schools. Hence, many of the brightest students in America still regard a career in medicine and a place in medical school as a significant achievement.

The Medical College of Wisconsin is a large school with 200-205 students per class, placing it in the 90th percentile of U.S. schools for size. Although suggestions have been made to reduce class size, we do not intend to pursue this course of action. We do support the Association of American Medical Colleges position that there are too many residency positions and that restrictions should be placed on the number of graduate medical education slots in the first postgraduate year, to 110-125% of the annual number (16,000) of U.S. graduates.

The first and second year students at the Medical College of Wisconsin will, as of fall or winter of 1998, enjoy the advantages of our new Health Research Center. This five-story multi-use building accommodates a new addition to our medical library which will house additional information technology for learning and support greater usage by students. In addition,

we will have a new teaching auditorium which will accommodate 325 participants. New small group teaching and conference rooms will also enhance student life both academically and socially.

Within the initial two basic science years, the Medical College of Wisconsin faculty are also achieving greater integration of the curriculum, which means that course work within the first or second year is coordinated among course directors (horizontal integration), and course work within the first two years is coordinated and integrated between these years and with what is expected by clerkship and elective directors in years three and four (vertical integration).



Curriculum Challenges

The clinical years at the Medical College of Wisconsin are, as they are at all schools, very popular with the students. We benefit from close relationships with major affiliates including Froedtert Memorial Lutheran Hospital, Children's Hospital of Wisconsin, and the Veteran's Administration Medical Center, as well as many community hospitals. A major challenge facing our faculty and students is the diminished

Michael J. Dunn, MD, is Dean and Executive Vice President of the Medical College of Wisconsin. Before joining MCW in 1995, Dr. Dunn was Associate Director of the Department of Medicine and Acting Chairman of Medicine at Case Western Reserve University School of Medicine and the University Hospitals of Cleveland. He held other administrative positions there and was also the Hanna Payne Professor of Medicine and Director of the Nephrology Division.

number of inpatients and, hence, reduced availability of learning and teaching experiences for the students. This is coupled with continued decrements of residency positions, particularly in specialties. As GME positions are decreased at these affiliated hospitals, there are fewer residents available to work with the third and fourth year students during their clerkships and electives, respectively. All of us remember the essential role played by residents in our own medical education and this role cannot be substituted by a physician's assistant or nurse clinician, who might be hired to enhance clinical care when fewer residents are available.

We have recently completed a definition of expected outcomes for the educational program in the third year. This coincides with the Association of Medical College's objective called the Medical Schools Outcomes Project, which is looking at a definition of expectations across all four years of medical school. Simply stated, the faculty are working to specifically describe what every student should know at the end of each year of medical school and at the time of graduation. This replaces the older method which leaves to chance whether a student will acquire all of the requisite skills necessary to be prepared for entering their chosen residency.

Looking to the Future

Although there are abundant challenges to academic medicine, particularly with reduced support for GME and increased emphasis on clinical productivity so that faculty have less time to teach, I am optimistic about the future of academic medicine and the Medical College of Wisconsin. Our

dedicated alumni and members of the State Medical Society and the Medical Society of Milwaukee County have generously contributed their time and efforts, particularly for our courses entitled "Clinical Continuum" and "Ambulatory Medicine." As a result, approximately 60% of our graduates choose a primary care discipline for their residency. They are very successful in achieving the residency of their choice, passing their Boards and moving on into practice. We are justifiably proud of our alumni, our current student body, and optimistic that our emphasis on professional excellence and the traditional ideals of medicine bodes well for the future.

*Preparing New Physicians —
Continued from p. 18*

delivery systems and pressures towards "commodification of medicine." It is safe to assume, however, that changes will continue at a fast pace and we will need to prepare students to practice and lead in an environment far different from the one most of us expected. One area of special attention is the application of information technology to medical education and practice, and thus our new curriculum emphasizes informatics learning opportunities. We are proud of our dynamic curriculum which provides not only a solid foundation in the fundamentals of science — in new interdisci-



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plinary courses such as neuroscience — but also gives students multiple opportunities to be actively engaged in patient focused learning as they work side-by-side with full-time UW faculty and with community physicians.

Generations of UW medical students are grateful to those community physicians throughout the State who take time to train our new physicians in solving real life problems and provide opportunities for them to develop their human touch and the essential communication skills. Today, more than at any time in our history, we rely on their commitment, enthusiasm and generosity to partner with us in assuring that UW medical students receive the best possible education and professional development.

In closing, I want to thank all members of the State Medical Society for helping us fulfill our mission to meet the health needs of Wisconsin and beyond through excellence in education, research, patient care and service — responsive to the evolving expectations of society. As we begin celebrating the Sesquicentennial of our conception, the University of Wisconsin Medical School is grateful for the privilege of preparing new physicians for the next millennium with a family of basic science and clinical faculty collaborating in partnerships with community practitioners/teachers. By working together, we can assure that medical education in Wisconsin is aligned with the needs of both the profession and society.

Who's in the News —
Continued from p. 11

AMA Awards

The Wisconsin physicians listed below recently earned AMA Physician's Recognition Awards. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations. The * indicates members of the SMS.

*Edwin L. Downing, MD
Joyce B. Gitter, MD
*Patrick J. Kiefer, MD
*Jeffrey A. Kurtz, MD
William B. MacDonald, MD
*James J. Rankin, MD
*Michael J. Rietbrock, MD
*Raymond C. Zastrow, MD



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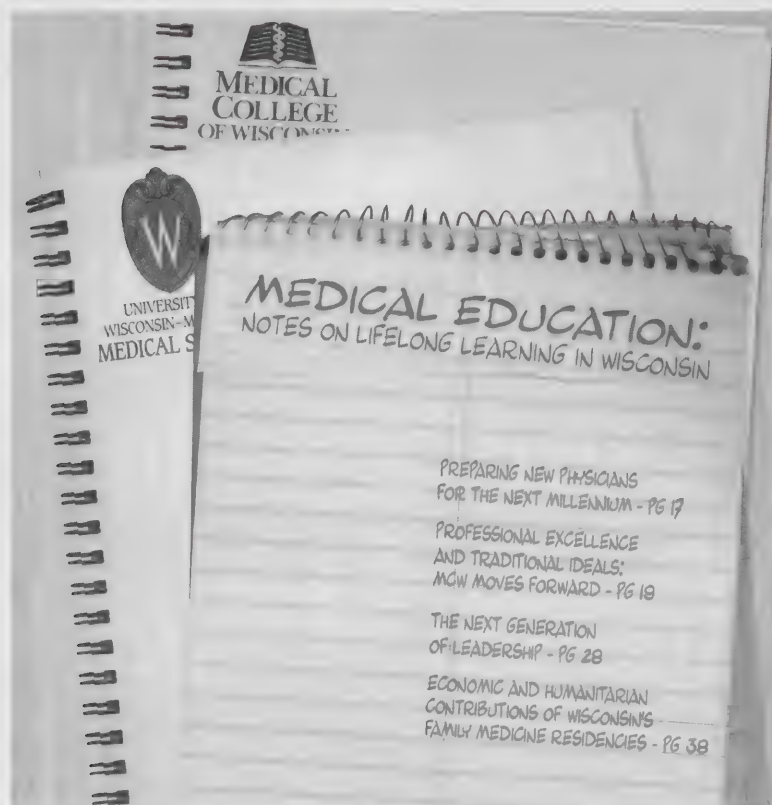
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Turning Students into (State) Residents...

by Marc Kennedy, Special to WMJ

Through innovative hands-on primary care programs, students at the state's two medical schools learn from practicing physicians throughout Wisconsin, and get a taste of what real medicine is all about. Apparently, it whets their appetites: in family practice, two-thirds of those who do their residencies here stay in the Badger state.

If a medical student does not pursue a career in family medicine or as a general clinician, it won't be because they have not been exposed to it during medical school. Whether in preceptorships, clerkships or partnerships, medical students are spending more time with primary care physicians than in previous years.

"Until about 10 years ago, there was only one year of hands-on experience in the fourth year of medical school at the UW," said John Frey III, MD, Chair, Department of Family Medicine. "Now, med students get some practical experience each year in community practices, with at least one apprenticeship in primary care. By the time they go to residency, they know the real world; they're not a bunch of hot-house tomatoes."

Students love the apprenticeships. It gets them out of the classroom and opens up the world of medicine to them. It reminds them of why they wanted to go into medicine in the first place.

Frey added that the cooperation and the accessibility of the volunteer physicians who help train students in their clinics has made going into family medicine in Wisconsin such a positive and easy choice.

Hands-on from Day One

"We give medical students progressive responsibilities each year," said Steven Lawrence, MD, Director of Predoctoral Education and Associate Professor of Family and Community Medicine at the Medical College of Wisconsin, of the curriculum at MCW, similar in many ways to that of UW Medical School.

"Helping them in clinical



John Frey III, MD

decision-making such as physical diagnosis; how to order cost-effective tests and interpret them; and medications to order for certain conditions," stated Lawrence.

"They also learn how to behave professionally; communication skills for working with other physicians, medical professionals, staff, and of course patients and their families.

"Few of us are born with these skills. They have to be learned over time, and we feel the best way to learn these things is from doctors themselves."

Between the first and second years, the Wisconsin Academy of Family Physicians (WAFP) helps place UW and MCW students with volunteer physicians in urban and rural areas across the state for eight weeks of practice experience. Depending on funding, which comes from the WAFP, private corporations, individuals and other sources, 40-46 students are placed in the field each summer.

"This is the program's 30th year," said Lawrence, "making it one of the oldest in the nation." These programs give students a breather. At MCW, the curriculum is traditional, in that there is mainly classroom work in the first two years. This program allows students to experience a purely clinical experience. They report that it rejuvenates them, and serves as a reminder about why they came to med school in the first place.

"Such programs also enable them to be involved in role modeling; they learn what it's like to be a doctor. Students have no concept of what it's really like, so this gives them an opportunity early on in medical training to work one-on-one with a practic-

*Whether in
preceptorships,
clerkships or
partnerships, medical
students are
spending more time
with primary care
physicians than in
previous years.*

ing doctor. To experience the lifestyle; see the good parts, the bad parts. Understand what the family life is all about; what they do for fun. It's educational, hands-on. And highly rated by the students," said Lawrence.

At UW, students are thrust into the medical environment "since week one" during their first and second years, according to Frey.

"We've made two changes of substance for med students," he explained. "They become part of the Generalist Partnership Program, in which for two years they apprentice themselves to one community doctor, affiliated with the Medical School, and Physicians Plus, Dean, UCC or another health care provider."

Third Year: OJB

The third year at both UW and at MCW is what Dr. Lawrence calls OJB: "On-the-Job Training."

"Students are required to do clerkships," explained Lawrence, who co-directs the ambulatory clerkship through general internal medicine. "They are working under a physician mentor, actually seeing patients. There is a small amount of classroom work, but 80% of what they do is in the field."

Students are given choices of eight-week clerkships, of which they normally complete six, including: pediatrics, surgery, OB/GYN, internal medicine, psychiatry, and anesthesiology.

UW began a community-based clerkship about eight years ago for third year students in family medicine, pediatrics and general internal medicine.

"They spend eight-week clerkships at campuses around the state," said Frey. "They can branch out and do rotations into smaller community medical offices through these central hubs. It gives them a comprehensive look at community health in Wisconsin."

Lawrence's department offers 16 fourth-year electives, ranging from sports medicine, to research, educational, nutritional, in-patient, and a variety of other family medicine electives, including a rural elective.

"One of the fourth year requirements to satisfy a sub-internship experience," he added. "This is offered in general internal medicine, pediatrics or family medicine. The student has more responsibility for direct patient management under physician supervision in hospital. This prepares them better for the first year of residency."

Both UW and MCW share and coordinate student liaisons with many of the same practicing physicians. For example, the Howard Young Medical Center in Minocqua hosts students from both programs.

"We work together to try to balance the number of students we send to particular practices or clinics," said Lawrence. "Neither school wants to overwhelm the local people with requests. Our preceptors do such a wonderful job, the last thing we want to do is burn them out. We realize that having a student for a period of time requires a great deal of extra effort."

Residencies A-plenty

MCW has several residency programs, coordinated through the St. Michael, Waukesha, Columbia, Racine All Saints and St. Mary's Family Practices. The UW Medical School operates five residency sites: Appleton, Eau Claire, Wausau, Madison, and in Milwaukee at St. Luke's.

"We started something new in 1994," said Carrol Christman, Assistant Administrator for Education Programs at the UW Department of Family Medicine. "We began core program rural training tracks and alternative clinical sites. There we can put small numbers of residents into underserved rural and urban areas, including central city Milwaukee. We also have several rural training tracks, an alternative clinical site in Augusta, serving an Amish community, and one site serves southeast Asian immigrants through an interpreter."

"The students see how medicine fits into the local cultures," Frey said, adding that this is the type of education taxpayers expect from a public institution. "We're responsible to Wisconsin citizens to train doctors in this state, to care for Wisconsin people. Medical education is part of and a good example of the Wisconsin Idea -- that the borders of the university are the borders of the state."

Times, Priorities Change

Just as the change in medical school curriculum has been carefully planned, so to is the movement toward more general practice and primary care physicians, especially as managed care requires the family physician to handle referrals.

"We're trying to do whatever we can to sway the pendulum

... Collaboration between communities and the medical schools has long been a hallmark of Wisconsin medical education, which ties local physicians, communities and health care entities in training medical students and residents in family medicine and general practice.

toward family practice," said UW's Christman.

"We really need a higher percentage of them because they are the core and the base of primary care. We can't send specialists out there alone."

Of course, the marketplace affects opportunities. As subspecialty areas are being tightened, more positions are opening in primary practice under managed care.

"Each one of our graduates has multiple offers upon graduation," she added.

"But most family practice residents remain in state; about 70%. Their distribution is a good example of the general population flow. About 40% of our grads are going into rural areas, which is about equal to the rural-urban growth in the state."

Graduating physicians in family medicine see that there are many options available.

"Some take a more generalist approach; they care, they want to help treat people. They're looking for a role model that fits with their view of medicine. I think many careers are formed through the experiences our students have with the physicians that graciously share their practices," said Lawrence.

"Again, I think if we didn't have such good cooperation — our students find mentors who accept them and teach them willingly — we wouldn't have these on-going positive experiences."

It Takes a Whole Community to Recruit a Doctor

"Where residents decide to practice goes beyond the physicians themselves," said Frey. "It involves the communities, the group health care provider, and the hospital, as well. Wisconsin has a solid history of this kind of collaboration that makes our job easier, both to place students with working doctors and for them to establish themselves after residency." In this way, he said, Wisconsin is fairly unique.

"I worked in North Carolina for 12 years, and it was not easy for someone to begin a practice. There was very little help; you had to go into hock for a lifetime to get established."

So, some areas that need physicians go unserved because of a lack of a mechanism to place them in those communities. In

turn, since there are fewer physicians practicing in those communities, there are fewer options for medical students to visit and learn. The two-week mentorship between the first and second year, or for several months during a fourth-year partnership, are limited.

However, collaboration between communities and the medical schools has long been a hallmark of Wisconsin medical education, which ties local physicians, communities and health care entities in training medical students and residents in family medicine and general practice. The same local entities are the driving force behind recruiting new physicians to their area as well, based on the medical needs of their constituents.

"As larger cities are becoming filled with doctors, the residents are moving out to other communities," added Christman. "Some of this is the readiness of community and the managed care provider to recruit. As the community develops, it may want to beef up its own hospital and increase the core of medical providers.

"Smaller communities have begun recruiting more heavily, so we have been creating rural training tracks to ensure we have enough family practice people trained. We've begun putting more residents in those sites, and we're able to do so because we have good relationships with competent doctors in nearby practices to help train them."

Christman added that rural and small-town practices today are different from living and working "in the boonies" even as little as five or ten years ago, as communication and towns themselves become more sophisticated and self-sufficient.

"Telecommunications help physicians keep in touch, and exchange information easier," she

said. "A lot has to do with the community itself. Availability of education, shopping, and support services are important so that doctors, spouses and families will feel comfortable.

"It also becomes important that they are part of a managed care system with a local hospital or clinic with other comparably-trained professionals who can share coverage to allow time off."

According to Christman at UW Family Medicine Department, two-thirds of the physicians trained in family medicine stay in the state, among the best retention rates in the nation.

Christman said that the UW Family Medicine Department is targeting areas in the state that they estimate will be requiring more primary care physicians in the near future.

"We're establishing programs all over the state to achieve equitable distribution," she said. "The site of training does heavily influence where residents establish themselves. They tend to stay within 80 to 100 miles of where they trained.

"We are going to even smaller population sites to see if we can retain and recruit. Of eight Wisconsin counties estimated to be responsible for 70% of the state's growth in next 20 years, our residency programs are in

five of them. I think that's pretty good targeting."

Doing Well, But We Can Do Better

According to Christman at UW Family Medicine Department, two-thirds of the physicians trained in family medicine stay in the state, among the best retention rates in the nation. This is a testament, the medical educators say, to the collaborative relationship among primary care clinicians in the state, communities and local health care providers.

"Success has many parents, failure is an orphan," said Frey. "Medical education works in Wisconsin because, in large part, of the dedication and sacrifice of the faculty who volunteer to help students in the various programs through the medical schools. It's their way of giving something back to the community, by giving students the opportunity to learn from them in their practice in their town. But it's also the communities themselves who, together with clinics and hospitals, plan growth in health care based on need.

"We've been succeeding for 25 years because we put together communities and placed doctors with students for that long. Right timing, right ideas, right environment," Frey said.

Lawrence, of MCW, believes this symbiotic circumstance is one reason so many students who do their residencies in Wisconsin stay in Wisconsin.

"These programs help foster that sort of interest in medical students and residents, and help build rapport with mentors. And these programs work because we have so many dedicated and gracious doctors in state willing to work with medical students and residents over the years for little else than the satisfaction of teaching others what they enjoy doing."

The Next Generation of Leadership

by Jeremy Pittenger, Contributing Editor



Michael Bigelow, PhD.

Michael Bigelow, PhD, medical student at the Medical College of Wisconsin (MCW), is Chair of the American Medical Association-Medical Student Section (AMA-MSS). The AMA-MSS is dedicated to improving medical education, developing leadership and promoting activism for the health of America.

Bigelow, who received his PhD in Biophysics in 1996 from MCW and will receive his medical degree later this year, also served as student representative on the SMS Board of Directors from 1992 to 1995.

Following is an interview in which he discusses the current concerns of medical students and the future of organized medicine from a student's perspective.

JP: *What are the major issues and concerns of medical students in organized medicine?*

MB: The issues, I believe, really are three-fold. The first deals with attending medical school – the cost of medical education or things of that nature that may dissuade or prevent more students from pursuing a career in medicine.

The second big issue is medical education itself. This includes the penetration of managed care into the medical marketplace, the failing of tertiary care centers and the ways HCFA and other governmental organizations are changing reimbursement for medical care.

We also seem to be setting a trend against medical students participating in care of patients. We're worried about medical education becoming observatory rather than participatory – whether medical students are going to be trained in hospitals or going to be sourced to outpatient care centers. Present-day managed care centers have been unwilling to put money into the system in order to support the educational efforts of medical education. They are willing to take the students and residents, but thus far they're not willing to shoulder any of the monetary burden associated with training.

The third main issue students are following is the transition to residency concept. We wonder about residency slots, how they will be proportioned, whether they will be controlled or capped, who will get to go where? We tend to focus on some of the more day-to-day issues in a global sense – all those scary issues about becoming a resident. Basically, who is going to decide my future?

JP: *How do you encourage students to become active in organized medicine?*

MB: Basically through the concerns I just mentioned – the issues

are rather enticing. The general response when I bring this message on my site visits around the nation or just to the MCW or UW-Madison Medical School is, "Wow! I didn't know that all this stuff was happening." I think it's true that medical students are a microcosm of the medical profession. We tend to isolate ourselves a little bit in what we do. We're so immersed and concentrated on the act of giving health care that we sometimes fail to see what's going on around us.

A lot of times I just raise awareness – that's what I'm trying to do, just talk with my peers. I'm very encouraged on how easy it is to mobilize students. We had a national vote drive to get a letter writing campaign going last fall when President Clinton was bringing forth the Medicare Reconciliation Bill to refinance Medicare. One of the items on the bill was to bring back, at least in part, some tax deductibility of student loan interest – something students had always been able to enjoy before the Reagan era. One of Clinton's initiatives was to make higher education more affordable and we jumped on that because it was such a big student issue. We got a massive letter writing campaign going, and I believe, in part due to that effort, the bill passed. It's heartening for me to know that I can bring that message to the AMA and SMS student structures in order to get them involved.

JP: *When did you first become involved in organized medicine?*

MB: When I started at MCW I went to a student orientation meeting highlighting different student groups at the college. Organized medicine in general struck me as a very neat way to get involved with the future of the profession. I came away with the conviction that it was really necessary to get involved to help shape the future of the profession that I had chosen. After my first year of medical school I became president of the AMA-MSS chapter at the MCW. I started going to the national meetings and it snow-balled from there to the point where I ran the national campaign last year which got me elected to Chair of the Governing Council.

JP: *What are your responsibilities as chair of the AMA-MSS Governing Council?*

MB: I have two major responsibilities. First, I am a steward of the organization when our bi-annual meetings are not happening. I try to keep our different national projects which are percolating on the back burners going. I do a tremendous amount of e-mail communication with different representatives with the emphasis placed on a number of very important AMA issues. I put together a newsletter for our student members so they understand what is going on. A lot of it is just day-to-day logistics.

The other big facet of my job is going out and raising awareness, making site visits to different chapters and campuses around the nation, helping out with membership drives, raising the visibility of the MSS, and also trying to impress upon students the importance of getting involved on both the local and national levels.

JP: *What are some of the programs the AMA-MSS has sponsored or supported that have raised awareness of your section?*

MB: This year we are organizing a series of sectional conferences [the AMA-MSS is organized into seven sections] in order to foster better inter-chapter communication and dialogue so we can start drawing on our numbers and acting more as a force rather than just individual efforts. To do that, we started sponsoring these chapter meetings with the support of the AMA-Education Research Foundation. These conferences

"I came away with the conviction that it was really necessary to get involved to help shape the future of the profession that I had chosen."

Michael Bigelow, Ph.D.

are part AMA business and part MSS. They serve more as awareness raising. A big part is an educational component where we bring people from around the nation to talk about debt handling and different kinds of social and public awareness issues such as domestic violence – issues that are sometimes given short shrift in the medical school because of the amount of the information medical students have to learn.

Some of the other national projects we are working on this year include an organ donor awareness program to be launched in the spring. We want to promote, through interactive education, the importance of organ donor cards, to help increase the transplantable organs that are available.

JP: *What should physicians know about today's medical students?*

MB: I think that today's medical student is a different generation. I think that a lot of medical students today have grown-up with managed care and don't see it as the same kind of enemy that some older physicians do. This is not to say that all is well and peachy with managed care. But I think we see this as a problem of an environment that is not going to go away, but one that needs to be worked with and optimized and bettered for the benefit of our patients. I don't think we see the same desire to make it just go away.

I see medical students today as being much more aware and active. The information explosion hit medical students especially. The amount of information out there is simply staggering. We have a new generation of physicians with a great degree of capability of using computers, logging onto the Internet, and searching for information. It's practically making our world smaller. I think medical students are more aware of this world and the political realities of medicine and medical education. I think they are ready to get involved. Routinely we have upwards to 1,000 students show up for the AMA-MSS Bi-Annual Meeting. We are getting some tremendous numbers of students from around the nation saying, "We want to participate."

If I had one thing to say to physicians it would be simply, "Talk to the students." Find out about the things they have experienced and seen. Encourage them to become involved for their careers' sake and to keep bettering the profession of medicine – not just let it drift without developing a new generation of leaders.

Tomorrow's Physicians Care for Today's Under-Insured

by Judith D. Burke, Managing Editor and Steve Busalacchi, Contributing Editor

Students Unite Health Care Professionals and Poor

Last month, a medical student-organized and run conference was held at the South Madison Health and Family Center. The conference was co-sponsored by the Medical College of Wisconsin Student Physicians for Social Responsibility (SPSR), the UW-Madison MEDIC program, and the Southeastern Wisconsin Area Health Education Center (AHEC). Both SPSR and the MEDIC organizations are involved in the delivery of health care to urban, under-served and uninsured populations via clinics staffed and organized by medical students with the help of volunteer physicians, nurses and allied health professionals.

According to Bill Trost, medical student and co-president of SPSR, "The purpose of the conference was to help future doctors to become more knowledgeable and effective advocates for the less privileged members of their communities.

"Student response to these volunteer programs has been tremendous," stated Trost, commenting that well over half of the first-year medical students at MCW volunteer each year to work at the student-run Isaac Coggs Weekend Clinic for the Uninsured in Milwaukee. Response to the MEDIC program in Madison has been similar. While it is clear that the students are responding to the call for participation with local volunteer

organizations, they feel that little emphasis is placed in the formal medical school curriculum to foster community activism. In order to address the situation, a group of students and faculty at

"...the Coggs Weekend Clinic is a good example of medical education working in synchrony with the community. ..."

Bill Trost

MCW and UW-Madison worked together to sponsor January's conference.

Coggs Clinic

The Isaac Coggs Weekend Clinic for the Uninsured, is one of the only completely student-run clinics in the country. It was started in 1991 by MCW Student Physicians for Social Responsibility members along with the cooperation of Physicians for Social Responsibility, the MCW Family Medicine Department, and the Isaac Coggs Health Connection weekday clinic.

The goals of the clinic are to provide quality medical care to

Milwaukee's urban uninsured and to create an environment in which medical students can learn organizational and clinical skills in a hands-on setting.

The clinic has been a success story since its inception, as indicated both by its popularity with patients and with the students whose volunteer time makes the operation possible. Local physicians, lab technicians, nurses, and others have also been invaluable to the program and have sacrificed many free hours to help educate students and patients, making it possible for the clinic to offer high-quality services.

A recent review of the value of these services indicates that they do indeed make an impact in the community. Coggs is estimated to have provided over \$160,000 of services and goods to the uninsured patients it served in 1996 alone. It should be noted that this figure does not include the contribution of the 1st, 2nd and 3rd year medical students, who together are responsible for taking patient histories, performing physical examinations and presenting patient cases to the 4th year students. An additional small group of six second-year students bear the responsibility of recruiting and scheduling student and MD volunteers, following up on specialist referrals, training student volunteers and coordinating each weekend's clinic.

"We feel that the Coggs Weekend Clinic is a good example of

medical education working in synchrony with the community; working to the benefit of the patients, who receive care which would otherwise be difficult to obtain, and the students, who are exposed to the most important human and humanistic aspects of medicine early in their education," said MCW student Bill Trost.

"I feel very privileged to have worked with these students; their devotion to the work, not to mention the devotion of the other volunteer students and doctors, is amazing," said Trost.

MEDIC Organization

The MEDIC Organization was formed in 1990 by first and second year medical students at the University of Wisconsin. MEDIC has two main objectives: 1) To provide primary health care services to under-served individuals and families in Madison at four clinics; and 2) To complement the education of medical and other health professions students by providing opportunities to participate in patient care and learn about the social and economic conditions influencing the health of those served by the clinics.

Organization of the clinics is overseen by the 15 student leaders on the MEDIC Council, who are responsible for operation of clinics, finances, drug and supply acquisition, and the coordination and education of numerous volunteers. Approximately 65% of UW medical students volunteer at the MEDIC Clinics. In addition, MEDIC volunteers include physician assistant students and students from the Schools of Pharmacy, Social Work, and Nursing. Additional support is provided from the UW Hospital Administrative Internship Program, and the staffs of Transitional Housing Incorporated,

Salvation Army, South Madison Health and Family Center- Harambee, and Safehavens Shelter.

The *WMJ* is pleased to provide this brief report of the conference and summaries of the remarks by several of the speakers. Perhaps the most important part of the conference was the small-group

"The purpose of the conference was to help future doctors to become more knowledgeable and effective advocates for the less privileged members of their communities."

Bill Trost

sessions which addressed the following topics:

1. Working cooperatively with other community agencies.
2. Starting a new clinic.
3. The physician as political advocate.
4. Forging a career working with the poor and medically underserved.
5. Student and patient rights and responsibilities in the clinic: synthesizing education and quality care.
6. Obtaining specialty follow-up for patients.

Students, Long-Time Physicians Find Rewards

First year UW-Madison medical student Melissa Chell attended the meeting to learn more about welfare changes and how they will affect poor people. "In order

to provide better service at a free clinic, I should be well informed about some of the current issues, especially the politics." Chell said she's worked with the poor in the past and found it "extremely rewarding." She plans to do so as a physician, too.

Paul Hunter, MD, a presenter at the conference, has worked with the poor for many years. He's in charge of a Milwaukee program that prepares family physicians to work in underserved areas. Hunter coordinates residency positions in the Urban Health Care Track at MLK-Heritage Health Center, which serves a primarily African American population. It isn't easy work, but he says it's worthwhile. "One of the things that keeps me going is feeling like I'm doing the right thing in the world."

Hunter feels appreciated by the community and by the patients. Besides the obvious altruistic nature of such service, he says it's important that medical students learn what it's like to work with people who have many social and medical stresses.

"Treatment prescribed by physicians for individual patients can affect the health of the entire community," Hunter commented.

Panel discussions followed the small group sessions, and edited remarks follow.

The Devil is in the Details: Opportunities and Challenges in Medicaid

Kenneth A. Germanson, staff, HMO Advocacy Project of Community Advocates

Medicaid offers great opportunities to ensure that low-income families — and children in particular — are able to get quality health care. Unfortunately, the promise as provided in federal

legislation has only partially been realized.

Most studies have shown that less than 50% of the families who are eligible for Medicaid or Healthy Start actually obtain such coverage. And, there are indications that with welfare reform, even more eligible families are being left out. Why are so many families not realizing the promise of Medicaid?

Medicaid access historically has been linked largely to AFDC. Many families, not wishing to be labeled with the stigma of accepting "welfare," simply did not apply. Since enrollment typically — though not exclusively — had been linked to "welfare" offices.

As the title of this presentation suggests, the "details" of eligibility determination have made it difficult for many families to qualify.

Eligibility determinations have largely been made by county workers whose primary purpose often seems to be to "deny" families. This could be blamed on: first, a built-in bias against those on "welfare;" secondly, a work overload situation in which workers in Milwaukee County handle more than 400 cases; thirdly, a lack of training so that workers often are unable to sort out many complex rules and differing income guidelines; and fourthly, because of "burn-out" of these same workers.

Further problems exist because of an unwillingness of health care providers, including doctors, clinics and hospitals, to care for any patient unless they show proof of health care coverage, whether it be commercial insurance or Title 19. In many cases, families which are eligible — but because of bureaucratic snafus or their own neglect — are denied health care, except in emergencies. This has been a particular problem for newborn babies covered under Title 19

(including Healthy Start) who quite frequently are dropped off the computer system in the second month of life, with parents having trouble accessing immunizations and other baby care during these critical early months. This problem is indicative of the type of bureaucratic nonsense that often hurts families. There are others.

Thus there is a critical need for advocates to be available to argue for these families; unfortunately, there is no real funding for independent "advocates," and families must rely rather upon an ombuds program run by its major computer system contractor. We have proposed that some state funding be provided to a community-based organization to handle such cases.

Prospective Health and Health Care Problems

Wisconsin Faces with W2

Seth Foldy, MD, Medical Director, City of Milwaukee Health Department

Federal welfare reform and Wisconsin's Welfare Works (W-2) program are having major health effects. These impacts vary dramatically by location (given the economic segregation in Wisconsin communities) and by time ("wave" effects as deadlines and eligibility limits occur). Health effects occur through three main "pathways." First is a major reduction in access to medical services. Second is the likely loss of income and nutrition support at both family and neighborhood levels and resulting implications for illness and injury. Third is the impact of sudden and massive increases in out-of-home childcare. Medical, public health and policy responses are needed.

Health professionals, including medical students, may have to help more patients figure out how they fit into the new welfare

system because there will be confusion. During the panel discussion at the conference, Foldy told the students that the architects of welfare reform have good intentions. However, he didn't sound particularly optimistic about the result of their efforts. "I hope to God it works, because if it doesn't, we're all in trouble."

Caring for the urban poor is a challenge, to say the least. Foldy, who worked in the inner-city for 15 years prior to becoming Medical Director of the City of Milwaukee Health Department, told the students that "burnout is the biggest threat" they'll face in committing themselves to this kind of work.

Payback Can't be Counted in \$\$\$

At the conclusion of the conference, MCW medical student Bill Trost urged his fellow students to keep things in perspective. "We're in a very privileged place...don't forget that when we're feeling like we're at our limit. It's not going to be as rewarding money-wise, as some other things...."

But before Trost could finish his thought, an audience member interjected, "But you won't be poor." Trost agreed, and added that "there are things you can't be paid for that are incredibly important."

Medical student Melissa Chell agreed wholeheartedly. "It only makes sense that someone who has a privileged position in life, could somehow give a little of that back to the community."

The *WMJ* recognizes the importance of these initiatives, both for the improvement of the health care available to the underinsured and for the overall educational value of the volunteer effort and the clinical exposure it provides for medical students.

What Did You Do on Your Summer Vacation, Josh?

by Marc Kennedy, Special to WMJ

Students are always asked what they did during the summer. Joshua Modder has an unusual answer. He met with community groups across the state, visited a local health group concerned with at-risk young mothers in Milwaukee, and traveled to a reservation near Black River Falls. "I read lots and lots of grants and contracts and went to lots and lots of meetings," he added.

Modder, a second-year University of Wisconsin medical student from Kenosha, received an SMS Foundation preceptorship last summer. His duties were to assist Richard Aronson, MD, MPH, Chief Medical Officer in the Maternal and Child Health Section of the state Bureau of Public Health, located in Madison.

"I basically helped Dr. Aronson as he was getting this first-year program off the ground," said Modder. "Much of the time we were meeting with local groups trying to establish or enhance community health initiatives.

"A lot had to do with entering young mothers and children into medical assistance and insurance programs."

Modder said he was amazed at how confusing and unorganized the bureaucracies were, with so many different agencies and regulations involved.

"We would meet with groups that were applying for Title 11 grants, federal money and some state money, to help local health projects," he said. "They would prepare grant applications for immunization projects or other child health programs. We would

review them, suggest changes or improvements, then make recommendations for approval."

During work with such groups, Modder visited inner city Milwaukee, and worked with the Milwaukee Healthy Women and Infant Project. With funds from the Bureau of Public Health, MHWIP personnel made home visits to help counsel young mothers who were crack cocaine addicts. Another meeting took him to the Native American tribal reservation near Black River Falls.

"These are independently-managed operations that are applying for grants," Modder explained. "The section and bureau are not directly involved, but they may audit a project, requesting feedback on how many mothers and children they have helped, to see how much of an impact the project is having."

He also worked with Dr. Aronson in reviewing contracts HMOs have with the state. "We wanted to ensure that the wording was favorable for the citizens of Wisconsin concerning treatment of children. So, we read many, many contracts. We were acting as sort of a gate-check for health care in the state: from the top down, with the HMOs, and from the bottom up, with the grants for local community health projects."

They also helped bring people together through meetings and seminars to discuss community health issues, including county public health officials, consumer groups, physicians, HMOs, and any other parties interested in exchanging ideas about public health.

To Modder, this was much more than a run-of-the-mill summer job.

"It was an amazing educational experience," he said. "I got a lot out of it." He said he hopes the section will expand the project next summer, offering more medical students the chance to follow his footsteps and work with Dr. Aronson. As for Josh Modder, though he enjoyed the community health aspect of his preceptorship last year, and says he loves children, he has already decided to try for a surgery rotation this summer.

The SMS Foundation's preceptorship award was instituted in 1997 to match students and physicians who work with government agencies. Students in good standing from both UW-Madison Medical School and the Medical College of Wisconsin who have demonstrated an interest in the political process or who are interested in learning about the ways government works in the private sector, are eligible to apply. Additionally, applicants are culled from SMS Foundation loan or scholarship recipients, and must be SMS members. Josh Modder was the first preceptorship recipient and his experience was so successful, the SMS Foundation hopes to eventually expand the program to include more students every summer. **For application information, please contact Maureen O'Brien, VP Member Relations, at SMS ext. 231 or via e-mail at: MAUREENO@smswi.org.**

Medical School Track for High School Seniors – Good for Them, Good for Patients

by Steve Busalacchi, Contributing Editor

Dressed as Cinderella, Amy Haavisto had just stepped off stage after starring in her high school musical, when her parents broke the news. UW Madison called. The high school senior from Niagra, Wisconsin had won a reserved spot in medical school.

"I was very, very happy," Haavisto recalled, because it was then that she realized she eventually would be a doctor.

Haavisto, now in her first year of medical school, was accepted into the coveted Medical Scholars Program (MSP). Two hundred and fifty to 300 high school seniors compete for 50 available spots.

"The most tangible benefit," according to program director Katie Huggett, "is the conditional admission, so these students know at the outset as freshmen, that if they take the required math and science courses, and maintain certain grade points...they know they have a place waiting at this medical school." Unlike other medical students, the scholars are exempt from taking the Medical College Admission Test (MCAT) or going through an interview process at the medical school.

Luring Best and Brightest

The UW created the program in 1981 because faculty felt Wisconsin was losing many of its brightest students to universities in other states. So to stem what administrators considered a "brain drain," they originally reserved 20 spots in the medical school for

academically-gifted high school seniors.

The first director of the program was Thomas C. Meyer, MD, Emeritus Professor of Pediatrics at the UW Medical School and now with the Office of Continuing Medical Education there and current Medical Editor of *WMJ*. Meyer "nurtured the program,"

*Surveys find many
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according to Selma Vaneyck, PhD, Assistant Dean of the UW Medical School. Vaneyck said Meyer was largely responsible for selling MSP to his colleagues, and making sure it got off the ground. It's done that and more. Surveys find many of the scholars decline excellent offers from out-of-state institutions because of the conditional admission and other benefits of MSP.

Successful high school candidates for the program not only earn high grades -- usually a 3.8

average or higher -- but they're usually active in volunteer organizations, community service or have shown high interest in learning about health careers. Tina Iyama, MD, an associate professor of pediatrics at UW Medical School, is an admissions committee member for the program.

Iyama satisfies her appetite for literature by teaching classes that focus on the works of medical writers, such as Oliver Sacks, MD. "It's a way to have them use their imaginations, get into the role of being a patient, and not just a doctor," she said.

Iyama said this allows Medical Scholars to consider different points of view. "Literature can do that in a way that standard journal articles can't."

A More Rewarding College Experience

MSP makes the undergraduate experience more meaningful for students, according to Iyama. "Getting that promised slot...takes the pressure off making college only a way to get into medical school," she said. There is so much competition for a seat, that most students take as many science courses as possible to give them an edge.

For medical student Amy Haavisto, MSP gave her the freedom to explore Greek and Roman history classes when she was an undergraduate. "I knew I had a spot available to me as long as I kept my grades up. . . and if I

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Maureen Melchior

Maureen Melchior, MD,
resident, St. Michael Hospital,
Milwaukee

Maureen Melchior is in her first year of residency at St. Michael Hospital in Milwaukee as part of the family practice residency program at the Medical College of Wisconsin. Six months in, Melchior is reaching "a turning point."

When asked about preparation for the types of situations she is encountering as a resident, Melchior said that the practical experience she gained as a medical student while working with physicians was invaluable. Her first experience was an externship in Green Bay, where she says she was mainly an "observer." But the second experience, an ambulatory family practice rotation in Sturgeon Bay between her second and third years, provided a wealth of hands-on opportunities to learn.

"Those were great experiences," she said. "At Sturgeon Bay, I was allowed to see patients, perform certain procedures. I was given the chance to figure out a diagnoses and treatment plans for the patients. I would then present this to my attending, then compare it with what he would do."

Melchior decided early in medical school to become a family physician and settle in a northeast Wisconsin community similar to her hometown of Luxemburg. But her experiences at the elbows of practicing physicians, particularly John Beck, MD, and George Roenning, MD, in Sturgeon Bay, reinforced this commitment.

"They were very positive people who gave me good feed-

back," explained Melchior, who was impressed by the rapport between the physicians and their patients. "I could see how much respect patients had for them; they trusted them. They were great role models for me. They were grads of St. Michael, and their input helped influence me in coming here for my residency."

One incident stands out for Melchior. It was a small gesture, but one that speaks volumes to her about the trust, understanding and compassion that she hopes she can foster with her patients in the future.

"I was on an OB externship, and the physician was delivering a baby to a Hmong family," she said. "It was a girl, the third girl in the family. I found out that in the Hmong culture, it is customary in such an instance to tie three knots in the umbilical chord after the birth. The doctor made sure he did this; just to make them more comfortable and to adapt to their culture. This really had an impact on me."

Mary Davis, MD, Columbus

This is the sixth year that Mary Davis, MD, has worked with medical students in her practice in Columbus. Nearly every eight weeks, she and another physician at the Physicians Plus Clinic receive a third-year medical student fulfilling a primary care rotation. Or, they are working with first and second year medical students through the Generalist Partnership Program. Additionally, they host a summer extern.

"Pretty much we have a student here just about all year round," said Davis. "There is nothing like it for the experience, to see what it's like to work in a real clinic."

The physicians spend the most time with the third year clerkship students. "At first we don't expect them to do much," explained Davis. "They perform patient histories, basic exams, some treat-

ment planning. Then we try to get them to apply what they have in their heads, what they've learned in the classroom, with what actually happens when people get sick.

"We try to expose them to a lot of different problems and circumstances so they can begin to formulate their own styles and skills that they will come to rely on in their practices later."

Though Davis says she enjoys the continual influx of students into her practice, regulations are wearing her down.

"It's become more difficult the last two years or so because of requirements by government and insurers," she said, explaining the additional steps required to prevent the practice of "clinic mills" in which only medical students, and not physicians, see patients.

"We work closely with our students and patients. The only thing that has changed is another added layer of paperwork."

Though this additional burden can be frustrating, Davis is not about to stop working with students. "Having students around is good for our morale," she said. "They are so appreciative, which makes us feel good, too. It really is gratifying to help someone else learn, and to help them through things that you've struggled with yourself as a student."

"We do this as volunteers, and will keep on doing it until we can't keep the doors open. We feel strongly about the need to turn out doctors with hands-on experience gained by working with practicing physicians. Since we want people to do primary care in this state, we need to support this effort."

"Being a primary care doc can be rewarding and a lot of fun, as well. I try to show them that they are treating more than just patients. That they are interacting with neighbors, often friends, and that you learn to suffer and celebrate right along with them."



Russ Sobotta, Glaxo Wellcome representative, with Gerald C. Kempthorne, MD, Chairman, MORP Fundraising Campaign

Glaxo Wellcome Supports SMS Asthma Research with Major Grant

by Steve Busalacchi, Contributing Editor

Glaxo Wellcome, Inc. has contributed a \$20,000 grant for ongoing SMS research into improving asthma treatment. The contribution, a leadership gift supporting the Medical Outcomes Research Project (MORP), will be used to determine which treatments best improve the quality of life for asthma sufferers.

"The Medical Outcomes Research Project is really addressing how we get good quality health care to the patient," said Russ R. Sobotta, Glaxo Wellcome's Midwest Manager of Regional Professional Affairs. "This is entirely in keeping with our mission."

The study of respiratory diseases is one of the company's main research areas, according to Sobotta, because "asthma is a growing problem." The disease afflicts an estimated 7% of Wisconsin's adult population, and 8% of its children.

In 1994, the SMS Foundation's Medical Quality Research Council chose asthma as one of the first conditions to study by MORP. Jerry Ingalls, MD, chairs the Research Council. Bruce Berry, MD, is chair of the Asthma Study Group and John Meurer, MD, MM, is chair of the Pediatric Asthma Committee.

Glaxo's grant will support the Project's goal of researching what

is the most effective care. For example, with asthma, the research will look at how well asthma drugs work, whether side-effects influence compliance rates, and if medications actually improve a patient's quality of life. It may be that certain asthma drugs are more appropriate for particular sub-groups of patients.

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WISCONSIN MEDICAL JOURNAL

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Economic and Humanitarian Contributions of Wisconsin's Family Medicine Residencies

William J. Hueston, MD, Eau Claire; Dennis J. Baumgardner, MD; Nick W. Turkal, MD; B. Clair Eliason, MD, Milwaukee; and John W. Beasley, MD, Madison

BACKGROUND

Family practice residencies have historically been funded by a combination of clinical income, medicare pass-through funding and state and federal grants. In this era of cost containment, residencies are forced to increasingly rely on clinical income to remain solvent. This paper examines the fiscal and humanitarian contributions of Wisconsin's family practice residency programs that may not be reimbursed by clinical funds.

METHODS

Data were elicited from Wisconsin's Family Practice Residency Programs by mail survey.

RESULTS

The combined twelve family practice programs in Wisconsin have nearly 300,000 patient visits per year (mean per program surveyed 25,000 per year). Fifty-five percent of the patients are covered by Medicare and Medicaid. Uncompensated care amounts to over \$1.4 million/year. In addition, many other direct and indirect services are provided. The combined residency programs have had 1,239 graduates with 715 (58%) currently practicing in Wisconsin, many in underserved areas.

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CONCLUSIONS

The family practice residencies in Wisconsin train many of the state's primary care physicians and provide many services to their institutions and communities, including significant clinical service to the poor and underserved.

The 12 Wisconsin Family Practice Residency Programs are responding to the enhanced need for generalist physicians¹ by increasing residency slots, attracting top-notch applicants, many with personal ties to the state,² and by increasing the diversity of training sites. These programs have already contributed substantially to the supply of generalist physicians in our state.

Family Practice residencies are continuously under scrutiny by their sponsoring institutions regarding the financial burdens that they create, and a few programs close each year, primarily for perceived financial reasons.³ Historically, most programs have been able to demonstrate budget neutrality or even significant surpluses by (somewhat arbitrary) cost-benefit analyses. In these scenarios, the deficits remaining from shortfalls in clinical income generated by the program residents and faculty were generally offset by Medicare payments for graduate medical education reimbursement, and state and federal grants.^{3,5}

Wisconsin Family Practice programs now face increased economic pressures due to:

1. Increased faculty and administrative/accounting resources required to fulfill Medicare billing guidelines for patients seen by residents.
2. Increased managed care activity in which formerly revenue-generating clinical activities are viewed as expenses.
3. The possibility of significant cuts in Medicare payments for graduate medical education.⁴

Table 1. Patient visits and payment data for respondent Family Practice programs (n=9)

Visits		
Mean outpatient visits/year (std dev)	24,478	(18,749)
Mean inpatient visits/year (std dev)	614	(249)
Mean obstetrical patients/year (std dev)	105	(47)
Payment		
Mean outpatient charge (std dev)	\$ 65.43 (13.76)	
Mean inpatient charge (std dev)	\$629.00 (114.71)	
Distribution of payers (std dev)		
Private insurance	37.6%	(18.2%)
Medicaid	34.8%	(19.1%)
Medicare	19.8%	(8.3%)
No insurance	5.9%	(4.1%)
Other	2.4%	(3.5%)
Estimated uncompensated care per program*	\$ 117,280	
Total uncompensated care, respondents	\$1,105,522	
Total projected uncompensated care†	\$1,407,360	

* Calculated as (% no insurance x mean outpatients x mean outpatient charge) + (% no insurance x mean inpatients x mean inpatient charge)

† Total projected for all 12 programs

Program viability, therefore, may rely upon support from society beyond the sponsoring institution.⁶

This article focuses on the impact of family practice residencies on the delivery of care and supply of family doctors in the State of Wisconsin, and their contribution to healthcare for the less affluent and indigent.

METHODS

A survey was sent to the directors of all 12 Wisconsin family practice resident program directors in the winter of 1995-96. The survey asked for data regarding the number of patient encounters, average charge for inpatient and outpatient services, and the number of maternity patients cared for during the previous fiscal year. Additionally, we inquired into the hospital services regularly provided by the residency program, as well as any other additional services that residents provided to teaching hospitals or their communities. A second and third mailing (if necessary) was sent to non-respondent programs.

Data on file regarding number of graduates was obtained from all 12 residency programs from their affiliate departments or directly from the programs. This included information regarding the current practice location of the graduates.

Data were collected centrally and analyzed utilizing a standard epidemiology database program (Epi Info, Version 5.0).

RESULTS

Surveys were returned by nine of the twelve (75%) state programs. Five of the programs were affiliated with the University of Wisconsin and three with the Medical College of Wisconsin. The remaining program was sponsored by a community hospital with an affiliation with the Mayo School of Medicine. Respondent programs were geographically diverse with representation from the state's urban centers (Milwaukee and Madison) as well as suburban areas and smaller cities.

Contributions of these programs to their State and local communities fell into three general categories:

- 1) Direct medical services to patients, as recorded by number of visits, including significant Medicare/Medicaid services, and uncompensated (free) care;
- 2) Service in the form of "safety net" coverage of local hospitals, and community outreach activities; and
- 3) Production of primary care physicians who often remain in Wisconsin, and frequently practice in underserved areas.

Table 1 lists the number of patient visits, payor distribution, average charges and estimated uncompensated care for respondent programs. Assuming the responding programs were representative, and that results from the respondents can be extrapolated to the other programs, then the family practice residency programs provided

Table 2. Hospital and community service provided by respondent programs (n=9)

Hospital Services		
24 hour in-hospital coverage		
Internal Medicine	9	(100%)
Pediatrics	9	(100%)
Obstetrics	9	(100%)
Mean number of residents in hospital/day (std dev)	2.9	(1.1)
Other hospital services		
ER coverage	6	(67%)
ICU coverage	2	(29%)
Medical eval of psychiatry patients	1	(14%)
Community Services		
Care at free clinic	7	(89%)
Care at community health center	1	(14%)
Domestic violence clinic	1	(14%)
Youth program evals	1	(14%)
Unplanned pregnancy program	1	(14%)
Teaching health courses	1	(14%)
Rural health clinic	1	(14%)
School-based clinic	1	(14%)
Salvation Army clinic	1	(14%)

care for nearly 300,000 patient visits per year, including obstetrical care and delivery of over 1,200 women.

Based on the self-reported percent of uninsured patients and the mean outpatient and inpatient charges, it is estimated that the state family practice programs provide uncompensated care to Wisconsin citizens in excess of \$1.4 million per year. The uncompensated care represents 5.9% of the average program total billing.

Table 2 lists services to local hospitals, and community outreach clinics and services provided by the programs. All programs provide 24-hour resident physician coverage for adult medicine, pediatric and maternity wards. This generally includes, but is not limited to, prompt physician evaluation and care of patients admitted to the hospital, management or co-management of adult, pediatric and neonatal resuscitations, and coverage for precipitous births and other obstetrical emergencies. In most cases, family practice residents are the only house officers providing these services in sponsoring hospitals. The total time commitment at each hospital represents 8,766 person-hours per year for each service delivered (such as medical ward service, obstetrics, etc.). Combining the inpatient hospital services for all 12 state programs results in family practice trainees providing over 315,000 person-hours of service each year.

Table 3. Summary of Graduates of the 12 Wisconsin Family Practic Residencies

Total number of graduates	1,239	
Mean number of graduates per program, [Range]	103	[6-274]
Graduates currently in Wisconsin, number (%), [Range %] *	715 (58%)	[30-74%]
Graduates currently in Wisconsin designated (HPSA) shortage areas, number (%), [Range %]*	85 (7%)	[1-15%]

* Based on known practice location for 1,233/1,239 (99.5%) of graduates

Residents and faculty from seven of the nine programs provide care at free clinics. Most programs also provide forms of community education, and also contribute further to medical education by teaching some combination of medical students, physician assistant students, and nurse practitioner students.

Table 3 lists data regarding program graduates and retention in Wisconsin. These programs have contributed 1,239 family practice residency graduates, of which 58% remain in Wisconsin. Over half of those in Wisconsin practice in Community Health Centers, or in or adjacent to healthcare shortage areas. Eighty-five practice in officially designated federal Health Professions Shortage Areas (HPSA sites) in the State.

DISCUSSION

Our state Family Practice Programs see nearly 300,000 patient visits per year. Program service to the poor and the elderly is demonstrated by the fact that over 55% of patient visits are those receiving Medicare or Medicaid. These percentages of Medicare and Medicaid visits are even higher than those reported by seven Northeastern Ohio residencies,⁴ and those reported in the National Ambulatory Medical Care Survey of visits to family physicians and general practitioners for 1990 (31%).⁷

These services are generally provided at very reasonable professional charges (Table 1). If not for our family practice residencies (and, no doubt, other such primary care programs), many of these patient visits might occur at hospital emergency departments at substantially higher cost. Moreover, based on the experience of other residency programs, we would anticipate that residents at our programs see a similar diagnosis mix and have similar hospitalization rates as do other

family physicians and general practitioners across the country,⁷ and without apparent additional mean inpatient cost compared to those patients not on a teaching service.⁸

One limitation of our study is the failure to obtain data from three of the programs. Non-responding programs may differ from the nine reporting residencies, however, respondents did represent a variety of geographic locations, sponsorship and community size. Estimates of total contributions of the twelve state programs may differ some from the actual, and important humanitarian contributions may not be reflected. Nonetheless, the contributions of the nine respondent programs alone are substantial.

The total projected uncompensated care (1.4 million dollars) is likely a gross underestimation, given that it is calculated solely on the basis of the proportion of patients with no insurance. While some payment will be received from these patients, it is likely offset by bad debt of patients with private insurance who are unable to pay co-pays and deductibles. The Northeastern Ohio family practice residencies, for example, reported an average collection ratio of 70%.⁴ In fact, many providers consider discounted Medicare and Medicaid services a part of their uncompensated care,⁹ items not included in our uncompensated total.

The total projected uncompensated care also does not include portions of resident and faculty care at free clinics. Free care at one such clinic alone is conservatively estimated at \$240,000 annually (data on file).

Our data may be compared to two surveys of Wisconsin practices. A 1988 survey of 101 Wisconsin physician group practices revealed an average per individual physician of \$4,300 charity care (1.6% of their total billing), \$9,100 of bad debt (3.0% of total billing), and \$7,500 of Medicaid discounted services.¹⁰ (Adjusting these figures to 1995 dollars using the US Consumer Price Index for Physician Services¹¹ suggests that private physicians in Wisconsin provide an average of \$6,200 in charity care, \$13,200 in bad debt, and \$10,900 in Medicaid discounts.) These figures are all substantially less than average for the state's family practice residencies. Ryan, et al.⁹ surveyed 21 physician and clinic managers in medically underserved areas of Wisconsin in 1992 and found that, due to Medicare and Medicaid discounts (and attendant paperwork and regulatory requirements), and charity care, several practices relied on outside funding to remain viable.

Beyond disproportionate Medicare/Medicaid and uncompensated care, residency program service provision should not be overlooked. This includes physician level coverage for resuscitations, procedures, emergencies and urgent obstetrical services. In addition, teaching hospitals are rated superior to non-teaching hospitals by such rating bodies as US News and World Report. Many excellent physicians prefer working at teaching hospitals and receive much of their professional satisfaction from teaching trainees.¹²

Family practice residencies also provide fiscal benefits beyond that for which they are credited. Schneeweiss reported on a "multiplier effect" for hospitals with family practice programs receiving up to \$6.40 of indirect billing benefit for every \$1.00 billed for direct physician contact. These included ancillary charges, consultant fees, hospitalization, etc.¹³

Community service is also demonstrated in this report, and while resident coverage may not be mandatory for the viability of these clinics and services, program directors have reported that, frequently, the start-up of these projects (e.g., rural, school, domestic violence and free clinics) was made possible by residency program involvement.

Finally, our Family Practice programs remain a vital source of primary care physicians for our state. Many practice in underserved areas and, according to a recent survey,¹⁴ a majority of graduates are likely providing maternity care in their communities, often communities lacking service from obstetricians.

In summary, the 12 Wisconsin Family Practice Residency Programs provide economic and humanitarian benefits that transcend the boundaries of their sponsoring institutions. The ability of medical centers to sponsor these programs may diminish due to reduction of Medicare educational payments, loss of State and Federal support, managed care, and increased uncompensated care by the residencies following reduction of State Medicaid roles. The benefits of Wisconsin's family practice residency programs to the overall health of our State must be considered when sources for alternative funds are necessitated.

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Faculty and Trainee Knowledge of Hepatitis C Infection at a Tertiary Care Medical Center

by Kia Saeian, MD; Fedja A. Rochling, MD; Rebecca Burke, EdD; Dawn S. Bragg, PhD; and Jose Franco, MD.

Presented in abstract form at the Poster session of the American Association for the Study of Liver Diseases, Tuesday, November 12, 1996, Chicago, Illinois.¹

AIM

Assess the hepatitis C knowledge base of medical faculty, house staff and medical students at a tertiary care referral center.

METHODS

A multiple choice test was administered to gastroenterology and medicine faculty, gastroenterology and medical subspecialty fellows, internal medicine residents, and students. The test consisted of 12 best-answer type questions which were equally distributed in the four areas of: general knowledge, epidemiology, diagnosis, and treatment of hepatitis C.

RESULTS

A higher level of training enhanced the number of correct answers in the areas of general knowledge ($p < 0.001$), treatment ($p < 0.001$), and diagnosis ($p < .05$), but it had no statistically significant effect in epidemiology ($p = 0.09$).

CONCLUSIONS

A gradient of knowledge, reflecting the level of training, exists regarding hepatitis C infection at this facility. Such a test could be used to assess particular deficiencies, guide subsequent educational efforts and implement clinical guidelines for diagnosis and treatment of hepatitis C.

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BACKGROUND

Hepatitis C is now considered the most frequent cause of chronic hepatitis in the United States. At this time, approximately 30,000 new cases of hepatitis C infection are diagnosed annually and some estimated 4 million Americans are infected.¹ Persistent hepatitis C infection develops in as many as 85% of patients with acute hepatitis C and within twenty years of the onset of infection, at least 20% of patients with chronic hepatitis C virus (HCV) infection develop cirrhosis.¹ Hepatocellular carcinoma also complicates chronic HCV infection, with most of the cases occurring in the setting of cirrhosis. Chronic hepatitis C is now the leading indication for liver transplantation in the United States.¹

Although interferon alpha is now established as an effective treatment for chronic hepatitis C infection, only 10%-25% of patients demonstrate a sustained response to interferon alpha therapy.^{2,3} Unfortunately, there is no other proven treatment, and chronic HCV infection often recurs even after orthotopic liver transplantation. Promising therapies, including a combination of interferon and ribavarin, are currently being evaluated.^{4,5}

Historically, the management of chronic hepatitis has been the domain of hepatologists and gastroenterologists. However, due to the high prevalence of chronic hepatitis C, primary care physicians will be increasingly involved with the diagnosis and treatment of chronic hepatitis C infection. To our knowledge, the overall hepatitis C knowledge level among medical faculty and trainees in a tertiary care center has not been previously assessed in a systematic manner. The aim of this study was to assess the hepatitis C knowledge base of medical faculty physicians, house staff and medical students at a tertiary care referral center.

METHODS

Fellows, residents and medical students were first approached at departmental conferences and those who did not initially respond were

approached on an individual basis. Medicine faculty were approached on an individual basis. A voluntary multiple choice test (Figure 1) was administered to gastroenterology and medicine faculty, gastroenterology and medical subspecialty fellows, internal medicine residents, and medical students rotating on medical clerkships (Table 1). The test consisted of 12 best-answer type questions which were equally distributed in the four areas of: general knowledge (q. 1, 3, 7), epidemiology (q. 4,5,6), diagnosis (q. 2,8,9), and treatment (q. 10,11,12) of hepatitis C. Correct answers were derived from the current literature, agreed upon by the authors and confirmed in consultation with an independent academic hepatologist. The tests were scored on a raw score system. Because of the small sample size at each level, item statistics for the 12 questions were not calculated for each individual group. Statistical analyses were conducted using Chi-square and ANOVA.

RESULTS

The test was distributed to 162 persons, 102 (63%) (Table 1) of whom voluntarily completed it. Those with a higher level of training scored significantly higher in the areas of general knowledge ($p < .001$) (Figure 2), treatment ($p < .001$) (Figure 3), and diagnosis ($p < .05$) (Figure 4). The same type of difference was not seen in the area of epidemiology, however ($p = .09$) (Figure 5). Overall, gastroenterology faculty scored higher than medicine faculty physicians and gastroenterology fellows scored higher than other medicine subspecialty fellows. Medicine faculty scored higher than medicine residents who, in turn, scored higher than medical students. Compared to the other areas of knowledge, the medicine faculty did particularly well in diagnosis.

CONCLUSIONS

This report represents the first systematic assessment of the level of hepatitis C knowledge among physicians at different levels of training. At this tertiary care facility, a gradient of knowledge exists regarding hepatitis C infection. Because of the high prevalence of hepatitis C infection and the concomitantly high progression to chronic disease and its accompanying complications, it behooves not only gastroenterologists but also general internists to be familiar with state-of-the-art management of hepatitis C infection. Several conclusions may be drawn from this study.

Not unexpectedly, gastroenterology faculty and fellows scored significantly higher overall than

the internal medicine faculty and trainees ($p < .001$). Individual groups did well in certain areas, however. For instance, medicine faculty did well in diagnosis which may be due to the active role they currently play in this area. On the other hand, the fact that medical students did almost as well as the gastroenterology faculty in epidemiology may reflect the lack of consensus (particularly with regards to transmission) within the current body of literature on the epidemiology of hepatitis C. Since the knowledge base of hepatitis C infection is relatively novel, it may also reflect the students' more recent exposure to this material.

We believe that this test measures relevant knowledge about hepatitis C. We do not believe it simply reflects the extent of exposure to patients with hepatitis C. At this institution, most of the hepatitis C patients are referred to two hepatologists and not the gastroenterology faculty. Yet, the gastroenterology faculty clearly did better than the medicine faculty. This lends support to our conclusion. In any case, it is clear that a large number of patients with hepatitis C are followed by internal medicine specialists.⁶ Thus, educational efforts aimed at the internal medicine faculty and focused particularly on treatment may be indicated.

Our study was limited by the use of a convenience sample, especially since those resuming the tests were not necessarily representative of their level of training. This is particularly true of the trainees since most were approached at departmental conferences. Those attending the conferences may actually represent a more well-informed and intellectually curious subgroup. Furthermore, our tertiary care center itself may not be representative of others. Our house staff and medical students have exposure to a large indigent population, the members of whom often have contraindications to treatment with interferon.⁷ This may not only limit their exposure to therapy but also skew their outlook on patients with chronic hepatitis C infection.

The gradient of knowledge regarding hepatitis C infection at our tertiary care facility clearly reflects the level of training. This test appears to have *face validity* in that those expected to have greater knowledge of the subject because of more exposure to it performed better on the test. Ideally, such a test could be used to assess particular deficiencies, to guide subsequent educational efforts and to implement clinical guidelines for the diagnosis and treatment of hepatitis. Evaluating this test at other centers would further establish its validity.

Hepatitis C Questionnaire

This questionnaire is voluntary and completely confidential.
Please circle your current status:

Staff Fellow Resident: PG1 PG2 PG3 JMS SMS

Circle the one best answer for the following question:

1) Hepatitis C infection is associated with all of the following **except**:

- a) Essential mixed cryoglobulinemia
- b) Inflammatory bowel disease
- c) Membranoproliferative glomerulonephritis
- d) Porphyria cutanea tarda

2) Chronic Hepatitis C infection:

- a) Typically has much higher AST than ALT levels
- b) Leads to cirrhosis in a small minority of cases
- c) Is not associated with an elevated risk of hepatocellular cancer
- d) May be seen with intermittent periods of normal transaminase levels

3) Acute Hepatitis C infection:

- a) Leads to jaundice in most patients
- b) Typically yields higher transaminase & bilirubin elevations than acute hepatitis B infection
- c) Is asymptomatic in most patients
- d) Is associated with a known risk factor in over 90% of the cases

4) Acute hepatitis C infection:

- a) Leads to chronic hepatitis C in all cases
- b) Makes up approximately 20% of all acute viral hepatitis
- c) Is transmitted via transfusion of blood products in most cases
- d) Is a frequent cause of fulminant liver failure

5) Hepatitis C:

- a) RNA has been identified in semen and saliva of infected patients
- b) Is most often transmitted via sexual contact
- c) Is now noted in <1% post-transfusion hepatitis
- d) Is transmitted by needlestick injury in <0.5% of stuck individuals

6) Hepatitis C transmission has been noted via all of the following **except**:

- a) Receiving an organ from a hepatitis C positive donor
- b) Placement of a tattoo
- c) Undergoing cardiothoracic surgery during which hepatitis C positive surgeon sustains digital trauma
- d) The fecal-oral route

7) Hepatitis C:

- a) Positivity is an absolute contraindication to liver transplantation
- b) Recurrence is **not** noted in the majority of recipients viremic at transplantation

c) Positivity, along with the presence of hepatitis B DNA in the same patient, is an absolute contraindication to liver transplantation

d) Positive patients with elevated transaminases should be imaged with CT or MRI

8) In the diagnosis of hepatitis C infection, all of the following are true **except**:

- a) Blood donations are now routinely screened for the presence of hepatitis C RNA
- b) A significantly higher incidence of hepatitis C RNA positivity is noted in chronic hemodialysis patients
- c) HCV RNA testing should be performed if antiviral therapy is anticipated
- d) The presence of HCV antibodies does not imply immunity to development of cirrhosis

9) In the diagnosis of hepatitis C:

- a) Second-generation ELISA tests are sensitive and specific and are thus routinely used for screening and confirmation purposes
- b) Any patient with hepatitis C should have an imaging scan of the liver
- c) In the renal transplant population, the absence of antibodies to hepatitis C virus usually excludes the diagnosis of infection.
- d) RNA testing can establish early acute infection prior to antibody detection or transaminase elevation.

10) In treatment of chronic hepatitis C, all of the following are true except:

- a) Alpha interferon has been shown to be efficacious in over half of treated patients
- b) Treatment with alpha interferon leads to improvement in histology
- c) Alpha interferon therapy is usually given three times/week for at least 6 months
- d) A liver biopsy prior to interferon therapy is mandatory, unless there is a contraindication to biopsy

11) In the treatment of hepatitis C infection:

- a) Prednisone at a dose of 40 mg po qd for six months followed by a slow taper has been approved by the FDA
- b) Platelet counts below 70,000 are an indication for treatment with alpha interferon in patients with cirrhosis
- c) Gamma-globulin should be used for health care workers that have been exposed to hepatitis C virus infected blood
- d) Acetaminophen, without alcohol, does not accelerate the course of liver disease

12) Treatment with interferon alpha

- a) Is associated with hair loss which is irreversible
- b) Should be discontinued if the absolute neutrophil count drops below 5,000
- c) Is contraindicated in patients with MPGN and a decrease GFEt
- d) Is commonly associated with fever, myalgias and malaise

Figure 1. The multiple choice test.

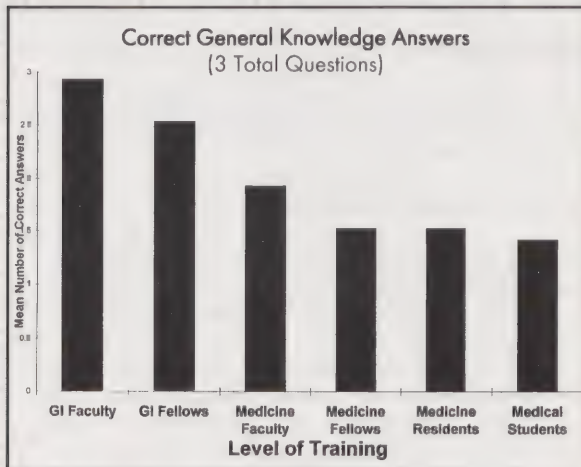


Figure 2. Test scores in the area of general knowledge (3 questions) according to the level of training.

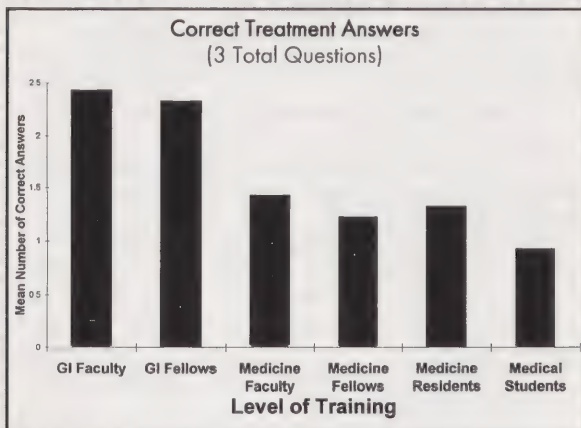


Figure 3. Test scores in the area of treatment (3 questions) according to the level of training.

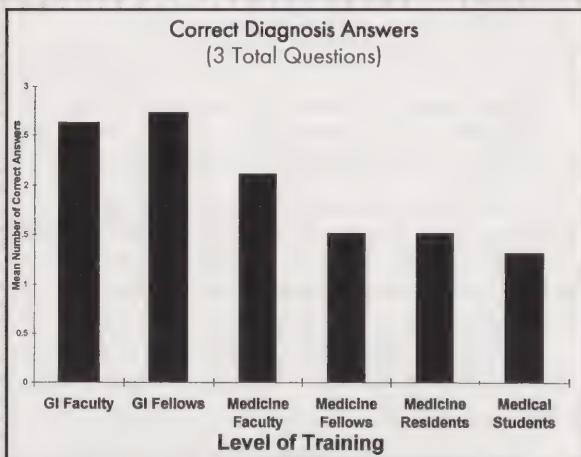


Figure 4. Test scores in the area of diagnosis (3 questions) according to the level of training.

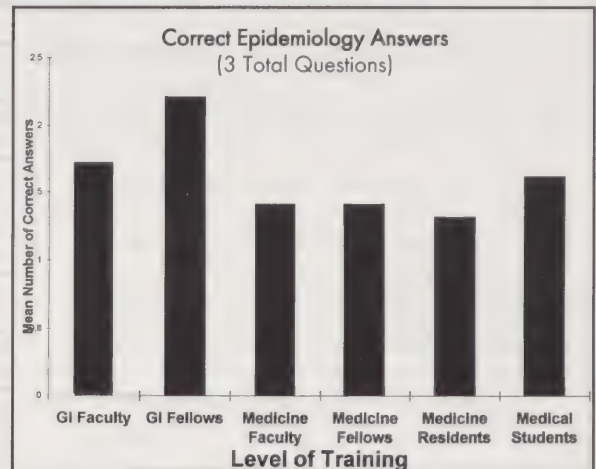


Figure 5. Test scores in the area of epidemiology (3 questions) according to the level of training.

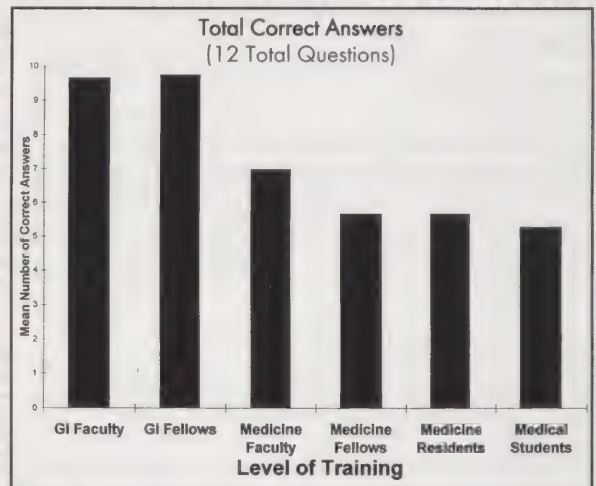


Figure 6. Total test scores (12 questions) according to the level of training.

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Medical Education at the University of Wisconsin- Madison: Comparison of Medical Student and Resident Education as to the Number of Physicians Practicing in the State of Wisconsin

Thomas M. Julian, MD, Madison

ABSTRACT

The primary mission of a state-supported medical education is to produce physicians who will practice in that state. Medical school and residency graduates at the University of Wisconsin-Madison were compared as to how often they practice in the state after completing training.

METHODS

Six hundred ninety-three medical student graduates from 1987 to 1991 were compared with 657 residency graduates from 1992 to 1996 at the University of Wisconsin-Madison. Chi-square was used to compare the groups as to the number of physicians produced who: 1) practice in Wisconsin and 2) practice primary care in Wisconsin.

RESULTS

The residency training programs produced significantly more physicians (280) who practice in Wisconsin than did the medical school (246), X^2 (df=1) = 7.20, $p < .01$, and also significantly more primary care physicians, X^2 (df = 1) = 6.16, $p < .02$.

CONCLUSION

When this evidence-based information is used as a measure of medical education outcomes, residency training may be more effective at producing

practicing physicians and should not be discounted when planning the educational and public health needs for the state of Wisconsin.

INTRODUCTION

Philip Farrell, MD, Dean of the University of Wisconsin Medical School, recently reported how two years ago the Association of American Medical Colleges (AAMC) established a panel of medical educators, the Advisory Panel on Mission and Organization of Medical Schools (APMOMS), from throughout the United States to analyze changes in American medicine and the effects of these changes on medical schools.

The panel gave five challenges for medical schools: 1) The major responsibility of a medical school is to select and educate physicians who can provide medical care, incorporating scientific advances and changing medical practices. 2) The central mission of medical schools is to advance health through ethical and efficient discovery and dissemination of knowledge. 3) Medical schools should provide a general medical education to prepare physicians to make career choices and establish career-long learning habits. 4) Medical schools should provide a learning environment both in basic science and clinical care. 5) Research activities should improve health care and demonstrate a return on the investment needed to maintain them. The APMOMS panel also suggests that medical schools promote these changes with evidence-based decision making.¹

In response to the challenges of APMOMS and as a result of the restructuring of the University of Wisconsin physicians' practice plan, the Dean of the Medical School appointed a task force in the fall of 1995 to address these issues. This task force attempted to assign fiscal allocations for

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Table 1

Comparison of UW Madison Medical School and Residency Training Programs at Producing Practicing Wisconsin Physicians

Practice site	Medical student graduates	Resident graduates
Wisconsin	246	280
Not Wisconsin	447	377
Total graduates	693	657

χ^2 (df= 1) = 7.20, $p < .01$

academic work in the areas of education, research and scholarship. A preliminary report circulated by the task force recommended a relative value system for medical student, graduate and undergraduate teaching that placed weighted values on time involved in teaching and class size. These relative values could be converted to dollar amounts based on medical school funding allocations. In the draft report, no relative values were assigned to postgraduate education of MD or PhD trainees. The rationale given by the task force for omitting these two teaching activities from the relative value exercise was the perceived secondary value (clinical billings or research productivity) which accrues from these activities. Subsequently, the recommendations of the task force were not accepted by the faculty and alternate plans for aligning funding with academic efforts are being developed.

However, the task force report suggested to the author that an evidence-based comparison of the relative value of medical school and residency training might be helpful in decision making about the funding of medical education. The questions asked are: 1) How many medical students that received their training at the University of Wisconsin Medical School and how many residents that receive their training at the University of Wisconsin Hospital and Clinics graduate medical education programs become practitioners in Wisconsin? 2) With the current emphasis on the training of primary care physicians, does either program produce significantly more primary care physicians who practice in Wisconsin?

SUBJECTS AND METHODS

Using a retrospective and descriptive design, two groups of individuals were studied: medical students graduating from the University of Wisconsin, Madison, between 1987 and 1991 and

Table 2

Comparison of UW Madison Medical School and Residency Training Programs at Producing Practicing Wisconsin Physicians, Excluding UW-WU Graduates as Residents

Practice site	Medical student graduates	Resident graduates
Wisconsin	246	228
Not Wisconsin	447	325
Total graduates	693	553

χ^2 (df= 1) = 4.33, $p < .05$

resident physicians completing their specialty training between 1992 and 1996. The medical student group corresponds in time to the same group completing residency training.

Students and residents completing residency training programs that would take more than five years to complete were excluded from the study (individuals in neurosurgery, cardiothoracic surgery, and plastic surgery), as were individuals in post-residency fellowship training, and graduates whose current practice location could not be determined. Exclusion criteria eliminated 2.6% (35 individuals) of the sample.

The final sample population included 1,350 individuals: 693 medical student graduates and 657 residency graduates. With two populations of this size, looking for a moderate difference between groups, the study has an estimated statistical power of greater than 0.9.

Names of the medical student graduates of the University of Wisconsin Medical School between 1987 and 1991 were obtained from the Office of the Dean of the University of Wisconsin Medical School. Names of the graduating resident physicians between 1992 and 1996 were obtained from the House Staff Office of the University of Wisconsin Hospital and Clinics.

To verify where these individuals now practiced, multiple sources were used. For medical students, a list of their current addresses was obtained from the University of Wisconsin Alumni Association; for resident physicians the House Staff Office provided this information. As verification of accuracy for these listings, the Wisconsin Medical Directory,³ the Internet Directory to Physician Medical Services and Health Resources Medseek Program, and directory information listings for office, home or hospital telephone numbers were all used. When there was a disparity between sources, a telephone call was made to the listed address of the graduate to verify the information.

Table 3

Comparison of UW Madison Medical School and Residency Training Programs at Producing Primary Care Physicians

Practice site	Medical student graduates	Resident graduates
Primary care	344	359
Non primary care	349	298
Total graduates	693	657

χ^2 (df= 1) = 3.39, .10 > p > .05

Chi-square was used to compare the groups. The independent or predictor variable was whether the physician was a graduate of the medical school or residency training program. The dependent or outcome variables were whether the graduate was presently practicing in Wisconsin and/or the specialty choice of the graduate.

Three questions were asked: 1) Does either training program produce significantly more physicians for the state of Wisconsin? 2) If medical students trained at the University of Wisconsin who become residents at the University of Wisconsin Hospital and Clinics were excluded from the resident population, does this account for any difference between groups? 3) Is there a significant difference in the number of primary care physicians produced who practice in Wisconsin?

RESULTS

From both five year periods researched, 1,350 individuals were available for follow up; 693 were graduates of the University of Wisconsin Medical School and 657 were graduates of the University of Wisconsin Hospital and Clinics residency training program. There were 246 (35%) graduates of the medical school and 280 (43%) graduates of the residency programs who currently practice in Wisconsin (χ^2 (df= 1) = 7.20, $p < .01$). The residency training program produces significantly more physicians who practice in Wisconsin (Table 1).

Some may argue that attendance at the University of Wisconsin Medical School predisposes individuals to becoming resident physicians at University Hospital and to practicing in Wisconsin and would therefore falsely inflate the residency retention rate. There were 52 (7%) graduates who attended both the University of Wisconsin

Table 4

Comparison of UW Madison Medical School and Residency Training Programs at Producing Primary Care Physicians Practicing in Wisconsin

Practice site	Medical student graduates	Resident graduates
Wisconsin	141	171
Not Wisconsin	552	486
Total graduates	693	657

χ^2 (df= 1) = 6.16, $p < .02$

sin Medical School and University Hospital and Clinics residency training programs and went on to practice in the state of Wisconsin. To ensure these students did not confound the results, Chi-square was calculated counting these individuals as medical school graduates but not as residency graduates. This left 246 medical student graduates and 228 resident graduates practicing in the state of Wisconsin. The residency training program still showed a significantly greater difference in producing physicians for the state of Wisconsin (χ^2 (df= 1) = 4.33, $p < .05$) (Table 2).

The number of medical students and residents going into primary care (family medicine, internal medicine, obstetrics and gynecology, pediatrics) were compared. There was no difference between groups in the numbers that went into primary care (χ^2 (df= 1) = 3.39, .10 > p > .05) (Table 3), but there was a significant difference between the number of primary care physician graduates now practicing in Wisconsin (χ^2 (df= 1) = 6.16, $p < .02$) (Table 4). The residency training programs produced a significantly greater number of primary care physicians practicing in Wisconsin.

DISCUSSION

Defining the relationship between academic output and medical school funding is inexact and is too often based upon historic precedent rather than actual contribution. The AAMC recommends that medical schools distribute funds to departments through a budget model that is fair and uses "quantitative and qualitative components" for allocation. The emphasis of the AAMC report is that educational institutions need to develop evidence-based measures of outcomes. When establishing rules to allocate medical resources, why should we abandon the scientific method for studying it? By omitting graduate medical

education from the original task force model for budget allocations, the importance of graduate medical education was minimized, even when it can be shown that the contribution of graduate medical education programs is significant.

The information presented is important, because it is an evidence-based measure of the product of medical education — the number of physicians produced by the University of Wisconsin Medical School and by the resident physician training programs at the University of Wisconsin Hospital and Clinics. This report suggests residency training programs may be more successful in training physicians to practice in Wisconsin than is the medical student program. When allocating funds for medical teaching, this fact should not be discounted.

Editorial

Meeting Wisconsin's Health Care Needs: What Are the Responsibilities of Educational Programs?

*Susan E. Skochelak, MD, MPH; Senior Associate Dean for Academic Affairs
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The citizens of Wisconsin need access to well-trained physicians, as well as other members of health care teams, to maximize their health and improve the quality of their lives. Many educators, policy makers, and health care employers have recently struggled to answer the question, "Does the state have enough doctors?"

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Dr. Skochelak developed a new longitudinal generalist curriculum required of all UWMS medical students. This curriculum is designed to give all graduating students an excellent foundation in general medical care upon completion of medical school. Additionally, it is designed to help the medical school meet state and national needs for primary care physicians.

ACKNOWLEDGMENT

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Two recent reports indicate that Wisconsin may already have enough generalist physicians to meet its population's health care needs, but that the distribution of physicians in areas of underservice remains the greatest challenge.^{1,2} Most of the analysis for health care workforce planning has focused on generalist physicians, as it has been documented that an oversupply of specialist physicians exists nationally and is likely to worsen in upcoming years as new trainees, already "in the pipeline," complete residency and fellowship training and enter practice.³

PHYSICIANS' WORKFORCE ISSUES IN WISCONSIN — WHAT IS NEEDED?

In 1996, Wisconsin had 4,055 active primary care physicians (excluding residents and fellows), which includes MDs and DOs in general practice (233), family medicine (1,427), general pediatrics (624), general internal medicine (1,320), and office-based obstetrician and gynecologists (451).⁴

Most workforce planners relate the numbers of providers to the size of the population, as absolute numbers do not tell the full story.⁵ Nationally, 60 to 80 generalist physicians per 100,000 persons is considered an appropriate target for workforce planning; in 1995, the overall availability of generalist physicians in Wisconsin was estimated to be about 79 per 100,000 persons.¹ The number of generalist physicians in Wisconsin is growing at about 55 physicians per year and when compared to the rate of population growth and aging, Wisconsin's primary care provider supply appears to be growing slightly faster than demand.⁶

But the fact remains that the State of Wisconsin currently has 59 federally-designated health professional shortage areas and that number is expected to increase, despite more primary care providers entering the workforce.⁷ Areas in north, south central, and inner cities of Wisconsin have populations that face continued shortages of generalist physicians, and the Wisconsin Office of Rural Health actively tries to recruit at least 150 primary care physicians a year in an attempt to alleviate this shortage of available care.⁴

The Consortium for Primary Care in Wisconsin, a non-profit group consisting of 85 professional, educational, policy and provider organizations interested in health care in Wisconsin, commissioned a Workforce Forum in 1996 which produced a white paper entitled, "Meeting Wisconsin's Needs for Primary Health Care Providers: A Report to the Citizens of Wisconsin". The report analyzed reasons for the lack of primary care providers in underserved areas, and stated "When considering what role the medical professionals play in underservice, a primary reason cited by many is the overall production of physician subspecialists who do not provide comprehensive primary care and are less likely to locate in underserved areas. Nationwide, 1.8 out of every 100 medical students, end up as primary care providers in medically underserved areas. In Wisconsin, there is a variance in the type of generalists most likely to practice in rural counties with populations under 50,000: 26% of family practitioners practice in these communities, 9% of general internists and 5% of general pediatricians."²

The Consortium Workforce report suggests that recruiting medical students exclusively from students who are residents of Wisconsin or from rural areas is an incomplete strategy in addressing the underserved needs of the state. Recruitment of students from rural areas is low; nationally only 17% of medical school enrollees have rural

backgrounds, and of these only 5% contemplate rural practice.⁸ While this number is discouraging, 5% entering rural practice would be two and a half times greater than the current national average of 1.8%. The Consortium Workforce report also notes that many of Wisconsin's current primary care physicians were neither raised nor trained in Wisconsin. The percentages of physicians practicing in Wisconsin who are not originally from the state are: 35% of family practitioners, 52% of internists, and 42% of general pediatricians.²

WHAT ARE THE MEDICAL SCHOOLS DOING TO ADDRESS THE NEEDS OF THE STATE?

In 1993, the University of Wisconsin Medical School and the Medical College of Wisconsin produced a joint report to the State of Wisconsin Legislature⁹ outlining the efforts that had been initiated to increase the numbers of medical students entering primary care practice in Wisconsin. Both medical schools had instituted changes in curriculum and admissions policies, developed programs with greater exposure to primary care early in medical school, increased the use of primary care rotations in third and fourth years of training, developed residency training tracks in underserved areas, and expanded the use of community based primary care faculty. What has been the outcome of such comprehensive changes?

In 1990, before the implementation of curricular and policy changes, the percentage of medical students entering primary care residencies (defined as family medicine, internal medicine and pediatrics) at the University of Wisconsin Medical School was 39%. In 1996, 54% of University of Wisconsin medical students were selecting primary care residencies, continuing a three year sequence of 56% (1994), 57% (1995) and 54% (1996). Numbers of students entering primary care residency training programs have also increased at the Medical College of Wisconsin and nationally. Not all of the increased interest can be explained by changes in medical education.

Medical students have paid attention to national trends in employment and supply and distribution of physicians. Doctor Julian's article in this issue of the Wisconsin Medical Journal (see page 47), "Medical Education at the University of Wisconsin: Comparison of Medical Student and Resident Education as to the Number of Physicians Practicing in the State of Wisconsin," reinforces the statistics cited in the

Consortium Workforce report. A substantial number of Wisconsin's physicians remain in the state after completion of their residency programs. The comparison of 1987-1991 medical school graduates to 1992-1996 residency graduates from the University of Wisconsin Medical School and the University of Wisconsin Hospital and Clinics training programs may have some inherent inaccuracies. The medical student cohort that Dr. Julian studied has now been in practice for approximately six to 10 years, while the residency cohort has been in the workforce for one to five years. The resident cohort is more likely than the medical school cohort to change practice locations at least once in their next three years. Some of the resident cohort still have health service or delayed military obligations. A number of residents, for family or personal reasons, typically may take up to three years to find their ultimate practice location, taking some time for locum tenens or salaried positions in the area until they are ready to commit to a more permanent arrangement. The accuracy of the exact relationship of the relative contribution of medical student education vs. resident education to the state's workforce may be a moot point at a time when physician supply is high. In the last five years, the Department of Family Medicine Residency Programs at both the University of Wisconsin Medical School and the Medical College of Wisconsin have had more than 70% of their graduates remain as practicing physicians in Wisconsin.¹⁰

WHAT SHOULD BE DONE TO ADDRESS THE STATE'S CONTINUING WORKFORCE NEEDS?

The Workforce Forum Report of the Consortium for Primary Care in Wisconsin concludes: 1) The major workforce problem in Wisconsin is the maldistribution of providers, leading to access problems; 2) Current initiatives aimed at meeting the demand for primary care providers, if continued and strengthened, are on course for meeting the state's future needs; 3) Structural change in health care delivery systems (i.e., growth of managed care, etc.) will continue to have an effect on workforce needs and should be monitored; and 4) State and federal funding mechanisms for provider training play a powerful role in influencing the selection and location of primary care practice.¹

That brings us to the question of who should pay for health provider education, a second issue raised in Dr. Julian's article. Medical student

education is financed through a combination of tuition, state support, contracts and grants, and clinical practice revenues. In recent years, as budgets continue to tighten, the University of Wisconsin Medical School has been exploring ways to tie revenue sources to work effort — a resource-based budget allocation model. Early efforts at budget modeling, such as the task force draft report cited in Dr. Julian's article, have not yet led to a better method of matching a faculty's work responsibilities with departmental revenue sources. Currently, the Medical School is using a strategic prioritization process to develop target areas for reallocation of limited funds. The biggest challenge that the School faces is to continue vital core support of instructional and research efforts at a time when new facilities are sorely needed, university budgets are being downsized, and competition for research funding increases every year.

Historically and currently, graduate medical education (GME or residency and fellowship training) is supported primarily by payments from Medicare and Medical Assistance, directed to training programs in teaching hospitals. The University of Wisconsin Medical School does not directly receive state funds to support GME, except for family medicine training programs. In 1994, the federal government spent approximately six billion Medicare dollars on GME funding. Additionally, the national support of GME through state Medicaid allocations was approximately two billion dollars. In Wisconsin, there are 36 teaching hospitals with residency programs receiving GME funds.¹ Nationally, in the face of physician oversupply, recommendations have been made to reduce the size of the residency training pool by one third.³ Several states have looked at ways to change the GME funds they pay through Medicaid programs, wishing to target programs that address primary care and underserved needs. Recently, the State of Wisconsin has proposed that a percentage of its GME Medicaid funds be set aside for a health professions educational pool — awarded competitively to educational programs from medicine, nursing, and allied health on their merit in meeting the state's health service needs.¹¹

In addition to Medicaid funds, the State of Wisconsin also directly supports family medicine training programs at the University of Wisconsin System (Appleton, Eau Claire, Madison, Milwaukee, and Wausau), the Medical College of Wisconsin System (Columbia, St. Catherine's, St. Mary's, St. Michael's and Waukesha Memorial),

and at St. Frances in La Crosse through general program revenue funds. As cited above, these residency training programs have played a central role in providing primary care for Wisconsin's underserved communities. The Consortium's Workforce forum report recommends that the state should continue or extend the direct funding of family medicine training programs, especially as they develop rural or urban training tracks to address the maldistribution of physicians in the state.¹

THE MISSION OF A MEDICAL SCHOOL — REVISITED

In his article, Dr. Julian states, "The primary mission of a state-supported medical school is to produce physicians who practice in that state." As we address the complex health care needs of Wisconsin and the nation, especially at a time when workforce issues indicate continued adequate supply of providers, such a narrow view of a medical school needs to be challenged. The mission statement of the University of Wisconsin Medical School reads:

"Meeting the health needs of Wisconsin and beyond through comprehensive excellence in education, research, patient care and service, responsive to the evolving expectations of society."

As the State of Wisconsin celebrates its sequecentennial, this vision, with careful stewardship from the leaders in medical education, should serve the state well for its next 150 years.

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Resident Continuity Clinics: A Learning Design for Group Private Practice

Scott W. Donovan, MD, MPH, Charles R.B. Beckmann, MD, MHPE, Claudia A. Beckmann, PhD, RN, Lisa Monagle, RN, and John D. Watson, MD

CONDENSATION

OB/GYN resident continuity clinics, organized as group private practices, facilitate patient care and resident education, preparing residents to become providers of primary health care to women, while being parsimonious of clinic resources.

ABSTRACT

Continuity clinics are required for residents in obstetrics and gynecology in the U.S., but are costly and difficult to administer. Organizing them into group resident continuity clinic programs which emulate the group private practice most residents will join, creates a design that is parsimonious of clinic resources, while providing a type of continuity with which patients, nurses, and physicians are familiar and comfortable.

Key Words: Continuity Clinics, Resident Education, Ambulatory Care, Primary Women's Health Care

INTRODUCTION

Resident continuity clinics, where a resident follows a patient for several years as her "physician," are a curricular requirement in obstetrics and gynecology training in the U.S. However, resident

schedules involving rotations on specialty services such as maternal-fetal medicine and gynecologic oncology, as well as limited clinic resources, make them difficult to arrange. Traditionally, resident continuity clinics have been in the solo practice model so that the patient often had to see another resident when "her doctor" was not available, thereby losing continuity and frustrating patients, nurses, and physicians. In increasingly competitive health care markets, patients may choose other care systems over the teaching environments because of these problems.

Most residents join some variety of group practice so that it seemed reasonable to organize their continuity clinics similarly for educational and patient care reasons. We created "group practices" composed of a resident from each of the four years of OB/GYN residency training, with the senior resident being "senior partner" with responsibility for all the group's patients. Residents remain in the same group for their entire residency and supervising attendings are assigned in rotation. Each group had its own office schedules and appointment cards. Patients received their primary and gynecologic health care in this group practice, with plans to include obstetric care in the future. Patients would be seen by "their physician" most of the time, but when that was not possible, they would be seen by a "partner" rather than a resident completely unfamiliar with them.

The hospital saw financial advantages in these resident clinics organized into group resident practices: one-fourth the number of resident schedules, decreased clerical and nursing support, and increased patient satisfaction because of ease and availability of physicians. As a result, the hospital agreed to assign a primary nurse to each group resident continuity clinic group practice to function as such a nurse would in any private office, including patient phone triage, surgical scheduling, follow-up, and review of laboratory results from the group practice.

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METHODS AND RESULTS

After one year of operation, the group resident continuity clinics received positive comments from patients on hospital patient satisfaction studies, especially concerning the issue of access to care and seeing doctors they knew.

The eight residents who had experience with the old "solo" continuity clinics and the first year of the new group practices were interviewed by questionnaire. Comments included:

- "There's no problem with coverage for... my patients... when I'm gone..."
- "More organized and efficient"
- "Team concept ensures that residents see patients that are appropriate to their level."
- "More likely to see the same patient and follow up with care plan... care plans can be discussed within the team if the same person can't follow up with a patient."

On a Likert scale from 1 (agree) to 7 (disagree), they responded as shown to the following statements about the effects of the group resident continuity clinics:

easier for patients to "get in"	
to be seen	2.4 ± 1.3
easier for my patients to	
see me or my partners	2.5 ± 1.9
scheduling of patients is	
easier	2.5 ± 1.9

DISCUSSION

Residents, nurses, and patients, as well as the sponsoring hospital, have expressed initial satisfaction with this group resident continuity clinic program which emulates the group private practice most residents will join, and is careful with clinic resources, while providing a type of continuity with which patients, nurses, and physicians are familiar and comfortable. This continuity is increasingly important as obstetricians and gynecologists become true primary care providers rather than providing primarily episodic reproductive health care and annual reproductive health screening exams.

A Graduating Medical School Class Evaluates Their Educational Experience

by Thomas M. Julian, MD, Madison

PRECIS

Graduating medical students rated instructional settings, materials, and teachers as to importance or influence on their medical education and reported how they would change curriculum and allocate educational resources based on their experience.

ABSTRACT

Objective: To determine how graduating medical students perceive instructional settings, materials, and teachers as to importance or influence upon their education and how they would change curriculum and allocate educational resources based on their experience.

Materials and methods: One hundred thirty-nine graduating medical students at the University of Wisconsin, Madison were offered five dollars to complete and return the survey. Students were asked to rate the importance or influence (1 = most important or influential, 5 = least important or influential) of more than forty educational settings, materials, teachers, and which aspects of the curriculum should be emphasized or preserved when educational resources become more limited. Open-ended responses were also allowed. Ratings were analyzed determining a mean and standard deviation. One way analysis of variance was used to determine whether there were differences among groups. When statistically significant differences existed, the Tukey HSD test

was used to compare subsets of the group. In the only group with a dissimilar number of responders, T tests were used for comparison.

Results: Sixty-four of 139 (46%) surveys were correctly completed and returned. Students rated the most important and influential parts of their education as experiences in years 3 and 4 of medical school. The most highly rated group of teachers were resident physicians (mean rating = 1.64, $F(df = 343) = 12.55, p < .0001$) during years 3 and 4 of medical school, followed by full time clinical faculty in years 3 and 4 (mean = 1.78), full time basic science faculty in years 1 and 2 (mean = 1.98), community physicians in years 3 and 4 (mean = 2.15), and teaching assistants in years 1 and 2 (mean = 2.75). Students rated the preservation of teaching efforts in years 1 and 2 (mean = 3.06), developing objective structured clinical examinations (mean = 3.21), and administering "board type" end of course examinations (mean = 3.42), as the lowest priority items for receiving educational resources. Coordination of the basic science and clinical years of medical school (mean = 2.03), problem based learning (mean = 2.08) and preserving teaching effort of years 3 and 4 clinical faculty (mean = 2.09) were the highest priorities for receiving resources. Open-ended comments indicated years 1 and 2 should be condensed and coordinated with years 3 and 4, making learning more clinically oriented.

Conclusions: Students at the end of their medical school education at the University of Wisconsin rate the clinical portions of their training as most important to their medical education and residents as their most important teachers. When asked how best to change medical education, their most common responses were to 1) make years 1 and 2 more clinically oriented, both by including patient care earlier and more often during those years, 2) take the repetitiveness out of the years

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1 and 2 curriculum and 3) prepare students for years 3 and 4 with transitional classes.

INTRODUCTION

Whether public financial support for undergraduate and graduate medical education will continue at its present level is doubtful. The current demands upon American health education centers seem to be to clarify their missions and to scale back the academic medicine system.¹ In medical education many changes in curriculum, teaching, and student evaluation are based on administrative supposition without measuring outcomes or learner perceptions of their education.² The objective of this survey was to determine how medical students at the end of their training perceive the importance or influence of instructional settings, materials, and teachers and how students would recommend changing their medical school curriculum.

SUBJECTS AND METHODS

End of the school year surveys were sent to 139 graduating fourth-year medical students at the University of Wisconsin Medical School. Students were offered five dollars to complete and return the survey. Students were asked to rate the importance or influence of more than forty educational settings, materials, teachers, and which aspects of the curriculum should be preserved when educational resources become more limited. A rating of 1 meant most important or influential, 5 meant least important or influential. Open-ended responses were also requested.

There were four large groups of items to rate including 1) educational methodology and settings, 2) teachers, 3) most influential people in the students' career choice, and 4) allocation of resources for medical education. Students were also polled as to their own career choice and asked for open-ended responses as to their most important recommendation(s) for medical education. Each major group had 2-12 subsets with up to eight categories in each subset for ranking. (Table 1)

Ratings are reported as a mean with standard deviation and standard error of the mean. One way analysis of variance was used to determine whether there were differences among subsets of groups. When statistically significant differences existed, the Tukey HSD test was used to compare sub-groups. In the only group with a dissimilar number of responders, T tests were used for comparison. Open-ended responses were compiled categorized, and reported as number of

respondents espousing a particular curricular change.

Results

Sixty-four of 130 students (46%) correctly completed and returned the survey. Of years 1 and 2 classroom instruction, year 2 was more highly rated (mean = 1.88) than year 1 (mean = 2.09), but not significantly so. Teacher prepared handouts were seen as the most valuable when comparing then to classroom instruction or assigned readings. (Table 2)

Of laboratory instruction, anatomy was rated most important, significantly more so than physiology or biochemistry. Biochemistry was rated significantly less important than any other laboratory instruction. (Table 3)

During years 3 and 4, teaching on wards was rated as the most important learning activity, significantly more so than classroom or small group instruction. Classroom instruction was seen as the least important activity during years 3 and 4. (Table 4)

Books were the most highly rated independent study medium, but not significantly more so than journal articles. Electronic media were rated as significantly less important than printed media. (Table 5)

Resident physicians were rated as the most important teachers of medical students. Their rating was significantly better than teaching assistants, basic science faculty, and community faculty. Resident physicians were more highly rated than clinical faculty physicians, but not significantly so. When directly compared, basic science faculty and clinical faculty were not significantly different. Community physicians and teaching assistants received the lowest ratings as teachers of medical students. (Table 6)

Clinical faculty physicians were the most influential teachers when it came to students making decisions about career choices. Teaching assistants and basic science faculty were the least influential. (Table 7)

Instruction during years 3 and 4 and preserving faculty teaching efforts in years 3 and 4 were rated as the most deserving of educational resources, significantly more so than during years 1 and 2. (Table 8) The coordination of activities in years 1 and 2 with years 3 and 4 and problem based learning were rated as significantly more important and deserving of resources than were either developing objective structured clinical examinations or working to provide more independent study within the curriculum. (Table 9) Students rated examinations that tested clinical skills

I. Educational methodology

A. Instructional materials or settings

1. Classroom instruction in basic science
 - a. Year 1
 - b. Year 2
2. Teacher prepared handouts
3. Assigned readings

B. Laboratory

1. Anatomy
2. Biochemistry
3. Physiology
4. Microbiology

C. Teaching in years 3 and 4

1. Didactic teaching (classroom lectures) years 3 and 4
2. Teaching on patient
 - a. Wards
 - b. Clinics
3. Informal small group instruction

D. Independent study

1. Books
2. Articles
3. Electronic media

II. Teachers

A. My most important teachers were

1. Basic science faculty in years 1 and 2
2. Teaching assistants
3. Resident physicians
4. Full-time clinical faculty years 3 and 4
5. Volunteer community faculty

B. The most influential instruction for my career choice came from

1. Teaching assistants
2. Basic science faculty
3. Resident physician
4. Faculty teaching physicians
5. Community physicians
6. Independent study

III. In your medical school curriculum if resources become more limited, existing resources for teaching should be directed toward

A. Instructional personnel

1. Improving the quality of instruction in years 1 and 2
2. Improving the quality of instruction in years 3 and 4
3. Preserving the efforts of teaching faculty in years 1 and 2
4. Preserving the teaching efforts of faculty in years 3 and 4

B. Instructional methodologies

1. Coordinating years 1 and 2 with years 3 and 4
2. Developing problem based learning
3. Developing Objective Structured Clinical Examinations (OSCE)
4. Providing better or more materials for independent study (lecture notes, reserved texts, book stipends for students)

C. Testing

1. Developing testing in years 3 and 4 that is clinically oriented
2. Developing testing in years 3 and 4 that is USMLE oriented, not clinically oriented

IV. If I could change the curriculum or medical education methods, my single most important recommendation would be to:

V. What is your career choice? List all that apply in order of importance.

- A. Research
- B. Teaching
- C. Clinical practice

VI. My medical specialty will be _____.

Table I. Survey as Sent to Graduating Medical Students

as significantly preferable to examinations that would prepare them to take the United States Medical Licensing Examination [$F(df\ 1, 124) = 59.42, p < .000001$].

Open-ended responses from students as to how to best change medical school fell into 9 categories including: 1) Combine or integrate basic science and clinical instruction; 2) increase clinical experience in years 1 and 2; 3) increase problem based learning; 4) revise existing teaching techniques; 5) improve the quality of teaching; 6) increase independent study opportunities; 7) increase the amount of small group teaching; 8) modify methods of course testing; and 9) a miscellaneous category.

Combining the medical school curriculum

Eight students suggested combining or integrating basic science and clinical instruction in the following ways:

1. Combine clinical and didactic (i.e., study respiratory and ward patients with respiratory disease as common clinical experience). (4 respondents)
2. Provide more interaction between years 1,2 and 3,4 students, so we can see where we are going.
3. Combine basic sciences to be more clinically oriented with less overlapping material. (3 respondents)
4. Make a second year course to prepare you for "on the wards."

Increasing clinical experience

Eight students felt there should be more clinical experience during years 1 and 2.

Problem based learning

Seven students thought there should be more problem based learning and that it should be clinically based.

Table 2 (I. A. 1-3)

I. Educational methodology

A. Instructional settings and/or materials

1. Instructional materials or settings in (N = 63)

	Mean	SD*
a. Classroom instruction Year 1	2.09	1.02
b. Classroom instruction Year 2	1.88	0.92
2. Teacher prepared handouts	1.84	0.88
3. Assigned readings	2.49	0.98

*SD = standard deviation

1 = most important

5 = least important

One way analysis of variance F (df 3, 248) = 5.93,
p < .0006

Tukey's test value = .022

Number of groups tested = 4

Comparison of all pairs using Tukey's test

	Differences between means	Significant Difference
Year 1 vs Year 2	.2063	No
Year 1 vs Handouts	.2515	Yes
Year 1 vs Assigned readings	.3968	Yes
Year 2 vs Handouts	.0451	No
Year 2 vs Assigned readings	.6032	Yes
Handouts vs Assigned readings	.6483	Yes

Table 3 (I. B. 1-4)

B. Laboratories (N = 63)

	Mean	SD
1. Anatomy	1.60	1.46
2. Biochemistry	3.46	1.16
3. Physiology	2.87	1.37
4. Microbiology	2.01	0.92

One way analysis of variance F (df 3,253) = 29.23, p < .000001 two-tailed T test was performed instead of Tukey's test because of unequal numbers of responders in each subgroup

	T test value	Significance level
Anatomy vs Biochemistry (df = 23)	-5.24	p < .00001
Anatomy vs Physiology (df = 24)	-3.18	p + .004
Anatomy vs Microbiology (df = 25)	-1.40	p > .17
Biochemistry vs Physiology (df = 23)	1.94	p > .06
Biochemistry vs Microbiology (df = 23)	5.49	p < .00001
Physiology vs Microbiology (df = 24)	2.67	p < .01

Table 4 (I. C. 1-3)

C. Teaching in years 3 and 4

	Mean	SD
1. Classroom Years 3 and 4	1.83	.77
2. Teaching on		
a. Patient wards	1.40	.75
b. Clinics	1.52	.94
3. Small group discussion	1.77	.96

F (df 3, 252) = 3.49, p < .02

Tukey's test value = .20

Number of groups tested = 4

1 = most important

5 = least important

Comparison of all pairs (5-7) using Tukey's test

	Differences between means	Significant Difference
Classroom vs patient wards	.42	Yes
Classroom vs clinic	.31	Yes
Classroom vs small group	.06	No
Wards vs clinic	.11	No
Wards vs small group	.36	Yes
Clinic vs small group	.25	Yes

Table 5 (I. D.1-3)

C. Independent study (non-assigned materials) (N= 64)

	Mean	SD
1. Books	1.92	0.98
2. Articles	2.01	1.15
3. Electronic media	2.74	1.24

One way analysis of variance F (df 2, 183) = 9.34,
p = .0001

Tukey's test value = .310

Number of groups tested = 3

1 = most important

5 = least important

Comparison of all pairs using Tukey's test

	Differences between means	Significant Difference
Books/articles	.0938	No
Books/electronic media	.8201	Yes
Articles/electronic media	.7263	Yes

6. Give feedback to students immediately after the rotation.

Improve the quality of teaching

Seven students mentioned quality of teaching and the teaching program as areas for change:

1. Most attending physicians are not really into teaching; we need more quality and quantity of teaching. (5 respondents)
2. Insure faculty instructors are dynamic and interested in teaching.
3. There should be more didactic sessions in year 4.

Independent study

Three students wanted more independent study stating:

Teaching techniques

Regarding teaching techniques, seven students mentioned changes they would make:

1. There should be a list of clinical skills for each rotation that are checked to make sure they have been attained.
2. There should be more discussing the patients on the service.
3. Use more one-on-one teaching.
4. Urge faculty to give students hands-on experience.
5. Provide incentives for UW faculty to teach.

Table 6

II. Teachers

A. My most important teachers (N = 64) (11. A. 1-5)

	Mean	SD
1. Basic science full time faculty years 1 and 2	1.98	0.98
2. Teaching assistants (TA)	2.75	1.16
3. Resident physicians (Res)	1.64	0.70
4. Full time clinical faculty years 3 and 4	1.78	0.98
5. Volunteer community faculty (Com Fac)	2.15	0.97

One way analysis of variance F (df 4, 315) = 12.55, $p < .0001$

Tukey's test value = .2067

1 = most important
5 = least important

Number of groups tested = 5

Comparison of all pairs using Tukey's test

	Differences between means	Significant Difference
Basic science faculty vs TA	.7656	Yes
Basic science faculty vs Res	.3438	Yes
Basic science vs clinical faculty	.2031	No
Basic science vs Com Fac	.1719	No
TA vs Res	1.1094	Yes
TA vs clinical faculty	.9688	Yes
TA vs Com Fac	.5938	Yes
Res vs clinical faculty	.1406	No
Res vs Com Fac	.5161	Yes
Clinical faculty vs Com Fac	.3750	Yes

1. Basic science needs direction. There needs to be emphasis on self-directed learning in years 1 and 2, making the transitions to clinical years easier.
2. Encourage independent study with less time spent in lecture. (2 respondents)

Small group teaching

Three students wanted more small group teaching, one emphasizing case studies in years 3 and 4; another mentioning mentoring as something that needs to be increased.

Testing

USMLE-type examinations were mentioned. Two students felt this type of examination was not a good end of course measure of learning. A third student felt there should be more specific preparation for these examinations during medical school.

Three student sharply criticized the Objective Structured Clinical Examination (OSCE).

1. OSCE is far from reality and more stressful than a written test, therefore there was no learning.
2. Grades were received months after the OSCE, making it a poor learning experience.
3. The year end simulation examination (YEPSA) is a poor use of time and resources. It tests little or nothing.

Table 7

III. Teacher Influence

A. My most influential teachers or materials were (N = 59) (III. A. 1~6)

	Mean	SD
1. Teaching assistants	4.21	0.97
2. Basic science faculty	3.67	1.18
3. Resident physicians	2.16	1.12
4. Faculty teaching physicians	1.78	0.97
5. Community physicians	2.25	1.28
6. Independent study	3.00	1.35

One way analysis of variance F (df 5, 348) = 42.46, $p < .0001$

Tukey's test value = .2356

1 = most important
5 = least important

Number of groups tested = 6

Comparison of all pairs using Tukey's test

	Differences between means	Significant Difference
TA vs basic science faculty	0.5357	Yes
TA vs Res	2.0518	Yes
TA vs clinical faculty	2.4353	Yes
TA vs Com Phys	1.9591	Yes
TA vs IS	1.2131	Yes
Basic science faculty vs Res	1.5161	Yes
Basic science vs clinical faculty	1.8996	Yes
Basic science vs Com Fac	1.4235	Yes
Basic science vs IS	0.6774	Yes
Res vs faculty physicians	0.3835	Yes
Res vs Com Fac	0.0927	No
Res vs IS	0.8387	Yes
Clin faculty vs Com Fac	0.4762	Yes
Clin faculty vs IS	1.2222	Yes
Com Fac vs IS	0.7460	Yes

Miscellaneous

Other students comments included

1. Offer more rotation options within Madison.
2. Stop being so easy on UW students.
3. The library needs to stay open longer.
4. "The old curriculum is the only good way to prepare students. Too much effort is going into formulating new curriculum . . . at the expense of learning."

CONCLUSIONS AND DISCUSSION

Students rated the most important and influential parts of their medical education as the experiences in years 3 and 4 of medical school. This is not unique to our institution.⁴ The most highly rated group of instructors in medical school were resident physicians in training, followed by full time clinical faculty in years 3 and 4, full time basic science faculty in years 1 and 2, and community physicians in years 3 and 4.

When asked how to best change medical education, the graduating students' most common responses were to 1) condense years 1 and 2 making them more clinically oriented, by including

Table 8

IV. Allocation of resources for medical school education
(Ratings: 1 = deserves the most resources, 3 = the least)
(N = 64) (IV. A. 1-4)

	Mean	SD
A. Instruction in years 1 and 2	3.06	0.87
B. Instruction in years 3 and 4	2.17	0.86
C. Preserving faculty teaching years 1 and 2	2.95	0.93
D. Preserving faculty teaching years 3 and 4	2.09	0.90

One way analysis of variance F (df 3,252) = 16.52,
p < .000001

Tukey's test value = .2085

Number of groups tested = 4

1 = most important
5 = least important

Comparison of all pairs using Tukey's test

	Differences between means	Significant Difference
Instruction years 1 and 2 vs 3 and 4	.8906	Yes
Instruction vs faculty effort 1 and 2	.1094	No
Instruction 1 and 2 vs faculty effort 3 and 4	.9688	Yes
Instruction 3 and 4 vs teaching 1 and 2	.7813	Yes
Instruction 3 and 4 vs faculty effort 3 and 4	.0781	No
Teaching effort 1 and 2 vs 3 and 4	.8594	Yes

Table 9

B. Allocation of resources for medical school education
(Ratings: 1 = deserves the most resources, 5 = the least)
(N = 64) (IV. B. 1-4)

	Mean	SD
1. Coordinating years 1, 2 with 3, 4	2.03	1.28
2. Problem based learning (PBL)	2.07	0.80
3. Objective examination (OSCE)	3.22	1.24
4. Independent study (IS)	2.80	1.19

One way analysis of variance F (df 3, 252) = 16.17,
p < .000001

Tukey's test value = .2678

Number of groups tested = 4

1 = most important
5 = least important

Comparison of all pairs using Tukey's test

	Differences between means	Significant Difference
Coord years 1-4 vs PBL	0.0469	No
Coord years 1-4 vs OSCE	1.1875	Yes
Coord years 1-4 vs IS	0.7656	Yes
PBL vs OSCE	1.1406	Yes
PBL vs IS	0.7188	Yes
OSCE vs IS	0.4219	Yes

patient care earlier and more often during those years, 2) take the repetitiveness out of the years 1 and 2 curriculum, and 3) prepare students for problem solving that is necessary in years 3 and 4.

That there will be down-sizing of academic medicine, just as there has been in corporate America in recent years, is without doubt.¹ Will medical educators fight to hold on to the concept that the mission of a medical school includes teaching, research, and clinical practice, or will medical school become a trade school? The latter may be more likely.²

Most academic medical centers and the politicians who fund acquiescent to the information indicating there is a surplus of physicians in specialty and sub-specialty practice. There is a shortage of primary care providers, but truly only in areas that are generally seen as less attractive practice sites—rural settings, economically depressed areas, and the inner city. Physician assistants and nurse practitioners are more likely to be trained in the hope of filling these gaps than are additional physicians.¹

After all the rhetoric clears, the present charge to the American medical education system seems to be to find a way to fit into the market driven

system of for-profit medicine. Currently educating a medical student costs approximately \$72,000-93,000 per student for each year of medical school. Curricular innovations like small group problem based learning, investment in single user information technology, and clinical education in ambulatory sites offer little to bring down the cost of medical education. Costs are either increased or shifted to other entities. Only by a net reduction of the medical school curriculum and personnel might cost be truly reduced.³ Unless both academia and society change dramatically their concept of a well educated physician, cost reduction in medical student education will be difficult.

It is interesting that our medical students' ratings and suggestions identify some of the same areas for change and are very similar to the recommendations by Houpt et al² regarding how medical schools can maintain quality while adapting to resource constraints. This group reported to the American Association of Medical Colleges (AAMC) on how to gain a better understanding of the effects upon medical schools brought about by the ongoing transformation in medical practice, science, and public expectations. The AAMC formed the Advisory Panel on the Mission and Organization of Medical Schools (APMOMS) in 1994. Six working groups were appointed including the working group on Adapting to Resource Constraints.

In their report they suggest some ideas for consideration including, but not limited to the

following: 1) Ensure educational and research programs are not overwhelmed by the needs of the clinical enterprise. 2) Decrease the number of full time basic science faculty by combining them with other health professions schools. 3) Reduce the length of the medical school program by integrating basic science and clinical sciences in the medical school curriculum. 4) Rely more heavily on clinicians to teach relevant basic science in the medical school curriculum. 5) Invest in selected faculty members to serve primarily as teachers. 6) Academic and financial rewards should be used to encourage faculty to serve as good mentors and role models. 7) Develop a compensation system that rewards performance outcomes, teamwork, and contributions to the institutional goals, including the teaching of medical students.

It is a good bet that academic centers will not survive in their present form. So what should we be thinking about in terms of change? It is clear that the clinical years of medical school are what makes medical students into physicians. Many preclinical courses in medical school taught by basic scientists probably present information more appropriate for graduate students than medical students. Practicing physicians might bring a unique perspective and relevance to basic science in the practice of medicine. Students surveyed see a need for integration of basic and clinical sciences and earlier introduction of clinical medicine in their training as the most important changes needed in curricular reform. Experts see the ability to provide good training without spending so much money as the primary issue. Many changes seem obvious when considering these things.

Present changes in health care financing, practice patterns, and government reimbursement for medical education may leave medical schools with a surfeit of clinical faculty. In opinion it is likely that medical-industrial complex in the United States may find it beneficial to train both their own scientists and clinicians as the credence of academic medical centers becomes insufficient to justify their expense. Community hospitals will provide all forms of clinical care at a lower cost and of equal quality. Managed care organizations will train their own physicians, not only in traditional medicine but in cost effective medicine.

Corporate health care systems will use physician extenders as physician replacements, in an effort not only to decrease provider salary costs, but to have providers who may be less likely to recommend expensive treatments in lieu of time

spent with patients. Autonomy and curiosity, long the hallmarks of academia, may not be as important in our future medical practice as are measurable outcomes—especially, educating health care providers in cost reduced medical care rather than in basic science.¹

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Editorial

Measuring Quality in Medical Education

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Producing well-trained physicians to meet the changing needs of society is a challenge that requires thoughtful evaluation, reappraisal and improvement. The goal of medical education at the University of Wisconsin Medical School (UWMS) is to ensure that medical students receive the best education to prepare them for the future demands of medical practice. Medical school is the first step in the professional education continuum and physicians must also be prepared with skills to allow them to continue learning throughout their residency and medical career.

Each medical school's education programs and resources are judged regularly against national standards established by the Association of American Medical Colleges (AAMC). The Liaison Committee of Medical Education of the AAMC outlines both the general and special essentials of medical education that must be included for medical schools to be accredited.¹ Schools are site visited by the LCME at least every seven years to ensure that they meet the national standards to receive accreditation. In 1996, the University of Wisconsin Medical School was reviewed by the LCME and reaccreditation for seven years, the maximum interval granted.

NEW INITIATIVES IN MEDICAL EDUCATION

In 1994, after a process of critical self evaluation, the UWMS implemented a new medical educa-

tion curriculum. Some earlier changes had already been adopted, such as a required primary care clerkship and expanded statewide educational sites. The new curriculum incorporated a set of comprehensive changes in the way UW medical students are taught, especially revising the first two years of the curriculum. The LCME accreditation report complements the UWMS on the planning and implementation of the new curriculum for medical students and advises the school to continue to monitor the results of this curriculum for quality and outcome.

The new curriculum at UWMS has the following goals: 1) increase active learning and reduce lecture time, 2) develop integrated, interdisciplinary courses involving basic scientists and clinicians, 3) develop a structured, comprehensive curriculum across all four years of medical school and 4) develop curricula in the uses of information technology and impart an understanding of medical practice as a process of lifelong learning.

A number of new integrated courses were developed to meet the above goals: Infection and Immunity replaced the two previous courses of Medical Microbiology and Immunology; a new Neurosciences course integrated the teaching of Neuroanatomy, Neuropathology and Psychiatry; early clinical experiences were started with the Generalist Partners Program; a four-semester course on doctoring skills – Patient, Doctor and Society – built on the foundations established in the Clinical Medicine and Practice course. Nutrition and Human Sexuality courses were added. Longitudinal curricula in Geriatrics, Women's Health, Communications Skills, Medical Ethics, Societal and Population Health, and Evidence Based Medicine were proposed for integration throughout previously existing courses.

As a result of the new curriculum, lecture time in the first year was decreased by 35% and active learning (small group discussions, clinical experiences, etc.) makes up approximately 45%-55% of scheduled time. In the second year, lectures were decreased to 40% of curriculum time, with active learning increased to 60% of scheduled time. The number of small topic courses in the second year of medical school was decreased from 22 to 13.

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Dr. Skochelak developed a new longitudinal generalist curriculum required of all UWMS medical students. This curriculum is designed to give all graduating students an excellent foundation in general medical care upon completion of medical school. Additionally, it is designed to help the medical school meet state and national needs for primary care physicians.

New or revised courses such as Endocrinology, Neurosciences, Pharmacology, Physiology, and Infection and Immunity integrate the first and second year courses, combining basic and clinical science faculty teaching.

A number in changes in the third and fourth year are also underway. Students begin third year with a transitional clerkship, a week-long experience that introduces them to universal precautions, advanced life support and practical clinical skills such as starting an intravenous line. An eight-week Primary Care Clerkship places students in practice settings in seven areas around the state. Other required clerkships have added new experiences in outpatient settings, upgraded core curriculum content, increased the emphasis on direct medical student teaching through the use of teaching mentors on the wards, and developed new resources for teaching, such as a surgical education room with updated electronic educational materials. A year-long core curriculum is being developed for the third and fourth year that will reach all educational sites around the state by distance telecommunication and computer-based instruction. The new Wisconsin Area Health Education Center (AHEC) has been instrumental in helping to implement many of these educational innovations in communities throughout the state.

New methods of student assessment have also been introduced. Students now use instructor patients to practice interviewing and physical exam skills. The "standardized patients" are community members who have been trained in the presentation and symptoms of certain medical problems and allow students to practice skills in a realistic way without inconveniencing or adding to discomfort of actual patients. These skills are tested through Objective Structured Clinical Exams (OSCE's) – stations where skills must be demonstrated on instructor patients in the presence of a faculty evaluator. A year-end clinical skills assessment exam was implemented at the end of third year. This assessment, testing competence in areas like breast and abdominal exam, ECG and chest X-ray interpretation, and communication skills, must be taken at the end of third year for a student to move on in their clinical studies.

HOW IS CURRICULUM QUALITY ASSESSED?

The UWMS monitors the content, quality and outcomes of its educational programs through a number of different methods. A combination of student surveys, peer faculty evaluation, standardized testing, and surveys of residency directors and alumni have been used to monitor the implementation of the new curriculum.

One way to assess the quality of an educational program is to ask the students to evaluate their experiences. Doctor Julian reports on a survey of 4th year medical students in his paper "A Graduating Medical School Class Evaluates Their Educational Experience," which appears in this issue of the *Wisconsin Medical Journal* (see page 56). The class that Dr. Julian surveyed entered medical school in 1993 and was the last to experience the old curriculum. Doctor Julian's summary of the students responses indicates that many of the problems of the old curriculum which had been identified in the school's self study were identified as issues by these students as well. The students' suggested areas for improvement reported in his article included: 1) make years 1 and 2 more clinically oriented by including patient care earlier and more often during those years, 2) address repetitiveness in the years 1 and 2 curriculum and 3) better prepare students for years 3 and 4 with transitional classes. The students' comments help to illustrate the areas that needed to change and which, in fact, have been addressed in the new curriculum.

While the students identified a number of important concerns, Dr. Julian's survey of the 1997 class may have some inherent biases, as only 46% of the students responded, despite the fact that they were paid for their effort. If a survey's response rate is low, skewed results may be obtained, either from people who are really dissatisfied or really satisfied, and who make the effort to complete the survey.

It is helpful to compare Dr. Julian's survey of the 1997 graduating class with the results of the 1997 Association of American Medical Colleges Graduating Seniors Questionnaire.² This survey, administered and analyzed by the AAMC annually and reported to all medical schools, collects information from UWMS graduates after completion of one year of residency and compares their responses nationally to all medical school graduates in their cohort year. The UWMS graduate response rate was 91% and the national response rate was 89%. When asked how satisfied they were with their medical education, 87% of 1997 UWMS graduates indicated they were satisfied or very satisfied (national response 87.4%). When asked how confident they were that they had received the basic skills needed for residency training, 83% of UWMS graduates and 87% of national respondents indicated they were confident or very confident that they were well prepared for residency training. Graduates were asked how well the basic sciences courses prepared them for clinical clerkships; UWMS and national 1997 medical school graduates both ranked their overall preparation at 2.0 (on a 1-5

scale, 1 = highest). These same students ranked the quality of their clinical clerkships in a similar range; overall rank of 2.1 from UWMS graduates, 2.0 from national graduates.

Doctor Julian is correct in challenging medical educators to make curriculum changes based on outcomes and evidence. We strongly agree with an evidence based approach to evaluating quality in medical education. In addition to the student surveys described above, the UWMS uses additional strategies in continuous evaluation of the new curriculum, as described below:

Faculty Course Review - A peer-review system of faculty course evaluation, the Course Review Oversight Committee reviewed 24 courses (two-thirds of the required courses) over a five-year span. The results of this peer review formed the basis for the revisions in the new curriculum and will be used to monitor progress in achieving its goals.³ In general, the CRO committee and student evaluations were in agreement 75% of the time. The CRO committee reported that for the 25% of the course assessments which were not in agreement, student ratings tended to upgrade courses that were not very demanding, had easy grading and /or devoted substantial amounts of time to clinical details, often at the expense of basic concepts and the big picture.

National Performance Standards - The UW medical student scores on the United States Medical Licensing Examination Steps One and Two are monitored in aggregate and for specific subject performance. While new ways of assessing students are now being used by the UWMS to supplement multiple choice exams, the "National Boards" remains the one way to compare student performance across schools. In the last three years, UW medical students have performed at between .2 and .3 standard deviations above the national mean for USMLE Steps One and Two, and consistently performed at or above the mean in all subject sections.³

Qualitative information - Simple surveys and numbers do not always reflect the complex reality of medical education. New ways of assessing course quality and student performance try to incorporate a multi-dimensional approach for gathering data. For example, in addition to standard student course evaluations, focus groups are held with students at the end of each semester. Students are interviewed in depth about individual courses, the overlap and redundancy between courses, and the content and level of material presented. The results of these focus groups are transmitted to the course directors to help improve the quality of their courses. Also, the instructor

patients in the "standardized patient" assessment program are asked to provide general feedback on student performance, including areas of professionalism, listening skills, clarity, and compassion.

When the first end-of-year performance assessment of third year medical students was administered, it was noticed that significant numbers of students performed poorly on the breast exam station. This led to specific changes in clinical clerkship teaching to ensure that all UW medical students were well trained in this skill, and the next year the students' performance significantly improved on the breast exam station.

Evaluating Outcome - Residency program directors of training programs where UW medical students have matched have been surveyed for the past three years by the UWMS Office of Medical Education, Research and Development.⁴ When asked to rate the quality of medical school preparation of the specific resident at the time they entered the program, 93% of UW medical students were rated good to outstanding. An additional outcome tracked is the career selection and practice location of medical school graduates.

The new curriculum at the University of Wisconsin Medical School, implemented in 1994, has been an exciting opportunity to improve the process of medical education. We eagerly accept Dr. Julian's challenge to maximize teaching quality, monitor outcomes of change, and target resources wisely. Through the evaluation efforts described above, we will continue to chart our course and monitor our progress in achieving our goal: That University of Wisconsin medical students receive the best education to prepare them for medical practice of the future.

REFERENCES

1. "Functions and Structure of a Medical School." Association of American Medical Colleges Liaison Committee on Medical Education Accreditation Manual. AAMC. Washington, DC, 1997.
2. "1997 Medical School Graduation Questionnaire." Association of American Medical Colleges. Division of Medical Education. Washington, DC, 1997.
3. "Performance of Examinees Taking USMLE Step 1 and Step 2." Report to University of Wisconsin Medical School. National Board of Medical Examiners, Philadelphia, PA, 1994-7.
4. Personal communication. Mark Albanese, PhD, Director, Office of Medical Education, Research and Development, University of Wisconsin Medical School, January 1998.

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Some Considerations Before Opening a Physician's Practice

by Kalisa Barratt, Associate General Counsel

When beginning a medical practice, whether starting a new one or joining an existing group, there are many matters that should be considered before you ever see your first patient. The following checklist was developed to itemize major tasks or decisions a physician should consider prior to that time. Depending upon the type of practice, some items may not apply; however, if this list is used, the majority of items will be covered.

□ Discuss practice location with spouse or significant other. Consider the type of community desired, location, size, hospitals, school system, and cultural opportunities.

□ Choose advisors. The physician's team may consist of: accountants, lawyers, bankers, management consultants, insurance agents, real estate brokers, and investment counsel.

□ Office facilities. Should you rent or own? If you choose to rent, negotiate lease — but be aware of Anti-kickback and Stark (self-referral) concerns. If you decide to own, negotiate and close purchase. If you previously signed a non-compete agreement with a former employer which is still in effect, make sure the location is not in the prohibited geographic area. Depending on

how complicated the transaction is, consider obtaining legal counsel input in reviewing pertinent documents.

□ Determine office layout and size. Take into account the expected patient base, practice specialty, Americans with Disabilities Act (ADA) requirements, staff size, and storage needs.

□ Furniture and equipment. Consider your office needs including chairs, desks, fax machine, calculators, computers, waiting room chairs, magazine subscriptions, tables, lamps, examining room furnishings, such as desk, chairs, exam table, medical equipment, and supplies.

□ Obtain necessary financing.

□ Obtain a license to practice medicine in Wisconsin and maintain appropriate CMEs. (30 hours of category I is required every two years.) Questions regarding either may be posed to the Medical Examining Board at: P.O. Box 8935, Madison 53708-8935 or (608) 266-2811.

□ Obtain federal narcotics number. You may call or write the DEA at: DEA Registration Branch, 230 S. Dearborn, Suite 1200, Chicago 60604, (312) 353-1234.

□ Develop employment contracts. Whether you are the physician employer or physician employee, consider having a written employment contract laying out the specific terms of your employment agreement. You may choose to have some employees "at will" with no written agreement. This choice will most depend upon the type of employee, but generally, non-professional staff will not have an employment agreement. The SMS Office of General Counsel is available to provide contract review to members, however, personal legal counsel should also be sought.



□ Partnership agreement or service corporation articles. Choosing the correct business entity is an important decision for both tax and liability purposes. Several types of entities are available in Wisconsin. If you choose to incorporate, articles of incorporation, bylaws and other documents need to be filed with the Department of Financial Institutions, Corporations Section located at 345 W. Washington Avenue, 3rd Floor, Madison, WI, 53717 or at (608) 261-9555. Consult an attorney or tax specialist to help you with your choice of business entity.

□ Hospital staff privileges. Once you decide which facilities

you want privileges at, start the privileging process early. Gathering necessary credentials information can be time consuming. Also, consider reviewing the Medical Staff Bylaws for each facility to gain an understanding of its governance structure.

❑ Consider becoming a Medicare and/or Medicaid provider.

To become a Certified Medicare provider, obtain forms by writing Medicare Part B, ATTN: Medicare Provider Certification Unit, P.O. Box 1787, Madison, WI, 53701-1787. To become a Medicaid provider, call the EDS correspondence line at (800) 947-9627 and request a provider certification packet. If you have questions regarding the advantages and disadvantages of becoming a Medicare or Medicaid provider, you may contact Tamara Larson at SMS extension 385 or Pat Feldner at SMS extension 387.



❑ Execute Managed

Care Agreements. Depending on where you open your practice, obtaining managed care agreements may be a necessity. Deciding which company to become affiliated with will require some due diligence on your part. The SMS has several helpful tools available, including a chapter on managed care in *A Physician's Guide to Wisconsin Health Law* (complimentary to all SMS members) and information submitted by HMOs to the Office of the Commissioner of Insurance (available for a small fee.) Review any data available regarding patient base and cost if considering a capitated agreement. An accountant may be helpful in determining capitation rates. The SMS Office of General Counsel is available to members to review managed care agreements.

❑ Obtain necessary insurance coverage. Several types of

insurance should be obtained, including: business-professional liability, Workers' Compensation, general liability, umbrella [business/personal], employee fidelity bond, personal-health, life, disability income/income protection, home owners, and auto. Consult your local insurance agent to discuss the appropriate level of coverage for you, or SMS Insurance Services, Inc., at (800) 545-0631.

❑ Determine office hours based on community needs.

❑ Apply for federal (800-829-1040, 800-829-3676) and state (608-266-2776) employer identification numbers (EIN).

❑ Apply for federal (800-829-1040) and state (608-266-8326) unemployment compensation tax ID numbers.

❑ Determine support staff needed, interview and hire.

❑ Create office policies and procedures. Address medical record documentation, retention and release; medical delegation to non-physician clinicians; prescriptions and drug security, and employment policies. Draft patient intake forms, financial responsibility forms, and termination letters. Consider implementing a corporate compliance program to train, monitor, and audit your office's compliance with the many laws that apply. A management consultant may be helpful.

❑ Develop financial systems. Determine fees, accounting system, billing system, statement format, collections and receivable management. Consider accepting credit card payments by patients.

❑ Open checking account(s).

❑ Announce your new office to local physicians, pharmacists,

general public via newspaper, telephone directory, individually mailed announcements and calling and appointment cards.

❑ Familiarize yourself with community resources such as hospitals, schools, pharmacies, social services, and rehabilitation services.

❑ Arrange for utilities (telephone, electricity, gas/oil, and water).

❑ Obtain a telephone answering service.

❑ Arrange for coverage during off hours.

❑ Order necessary office forms. These might include: letterhead, envelopes, RX forms, accounts receivable statements, third-party claim forms* or HCFA-1500 claim forms*.

❑ Arrange for lab and X-ray services. Again, be wary of Anti-kickback and self-referral concerns.

❑ Obtain a good debt collection service.

❑ Repay student loans on timely basis.

❑ Make certain that all employees complete federal Form W-4 and state Form WT-4 (withholding allowance certificates). For information on these forms you may call federal (800) 829-3676, or state (608) 266-2776.

❑ Memberships. Become involved in: county and state medical societies, AMA, specialty societies, local service or business groups, and hospital staff activities.

Conclusion

This checklist is intended to provide insight into the most common matters physicians

encounter when starting a practice. It is not inclusive in every instance since individual circumstances require attention to matters unique to that situation.

The AMA offers *Starting Your Own Practice* which can be ordered from AMA Publications (800-621-8335). Physicians may also contact the SMS for additional information: (608) 257-6781 or (800) 362-9080, or by writing to us at: P.O. Box 1109, Madison, WI, 53701-1109.

Whether opening a practice for the first time or moving a practice to Wisconsin, physicians will find valuable information in the SMS Annual Report, the July issue of the *WMJ*. This is a reference source on medico-legal, socio-economic, legislative, and governmental matters of direct concern to the physician. It also is a reference source on State Medical Society organizational structure, other related organizations, and state government agencies. To obtain a copy, contact Dawn Carlson in the Communications Department, SMS extension 364 or via e-mail at: DAWNC@smswi.org.

*Forms and publications may be obtained from the following:

William Guerten, Forms/Sales Coordinator
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(800) 362-9080

American Medical Association
Order Department
515 N. State St.
Chicago, IL 60610
(800) 621-8335

U.S. Government Printing Office
710 North Capital Street, NW
Washington, DC 20401

Medical School Track — Continued from p. 34

hadn't had that spot, perhaps I would have done a double major in an additional science."

Having the confidence to pursue other academic interests is an important aspect of the program. "They [MSP participants] can take a non-traditional major or they can take upper level or more difficult courses and have that freedom from the grade mania, the grade grubbing, where they're so concerned about everything they do, in terms of impressing an admissions committee some day," Huggett said.

Hands-on Work

Another advantage of the program is that these prospective medical students can get involved in research projects while they're still undergraduates. "It's really neat to get into research labs as quickly as we can," said UW Madison Junior Joanne Lagatta, a Medical Scholar whose major is nutritional science.

Lagatta served as the Shawano County Coordinator for the Wisconsin Women's Cancer Control program. She traveled throughout the large rural county to convince as many women as possible to get pap smears and mammograms.

"It was a fantastic experience," Legatta said enthusiastically. "I got to see what it was like to work in a health care field and now I'm thinking about going into public health because of that."

Other research projects Medical Scholars have participated in included ones that aimed to improve immunization rates among Amish families in the La Crosse area, helped Hmong children in the Wausau public schools adjust to cultural changes and performed blood tests in Manitowoc to screen for lead levels.

Yet another advantage of the program is that it tends to make a huge campus a little smaller. The scholars attend workshops together, like the ones Tina Iyama teaches, so they have an opportu-

nity to meet others who have similar interests and goals. Joanne Lagatta, who is from Clintonville, where the population (4,524) is only about one-ninth of the UW Madison enrollment (40,196), appreciated "the fellowship with other students."

The Follow-Through

Despite the benefits though, some of these students will not accept their reserved spot because they'll decide to follow a different career path. And that's okay with Huggett, because she says the whole idea behind an undergraduate education is to expose students to new ideas that will affect their lives. Even so, the majority of Medical Scholars do continue on with the program. Huggett estimates that at least two-thirds of them end up becoming medical students.

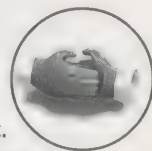
"What really did surprise our faculty is how many do matriculate to medical school, and of that number, how many remain at this medical school. It sort of exceeded the faculty's wildest expectations," said Huggett.

The program tends to draw an interesting mix of brilliant students with varied interests, many of whom tend to become music majors. Iyama described them as "well-rounded, bright, delightful individuals" who are particularly mature, considering they're still in high school. Iyama expects their diversified interests will serve them well as physicians.

Former high school Cinderella Amy Haavisto may not make her living on the stage or lecture on classical literature. But the first-year medical student will combine her non-medical background with her passion for science, to make a closer connection with patients.

"And I strongly believe that doctors who are a little bit more diversified sometimes are better at relating to their patients, and are better communicators," Haavisto said.

The next 50 outstanding Wisconsin high school students who will become Medical Scholars, should hear the news by April first.





SMS Members Receive Superior Malpractice Insurance

by Michael J. Dolan, CLU, ChFC

After much discussion and negotiation, SMS Insurance Services, Inc., and PIC Wisconsin have developed a new Member Benefit Program for all members of the State Medical Society of Wisconsin. This program is the *new and improved* version of the already outstanding professional liability coverage provided through PIC Wisconsin.

The new coverage offers all members the following financial enhancements: a 2% credit for free corporate and employee coverage, a 5% discount taken after all other discounts and credits are applied to the PIC premium (for a total credit of 7%) and State Medical Society profit sharing (with a potential 5% on earned PIC premium).



In addition to the financial enhancements of this new program, there are several coverage enhancements that need to be explained.

Retirement Tail

Old Policy: 5 years with PIC, retire at age 55
New Policy: 5 years with PIC, retire at any age

Attendance at Trial

Old Policy: Actual loss of earnings up to \$300 per day
New Policy: Actual loss of earnings up to \$500 per day

Legal Expense Coverage

Old Policy: No coverage
New Policy: Member benefit pays up to \$10,000 for legal services such as, interviews/hearing when a claim hasn't been made against the insured, disciplinary proceedings by the appropriate licensing board (MEB)

Coverage Area

Old Policy: Continental United States of America
New Policy: World Wide Coverage

Contractual Liability

Old Policy: Excluded

New Policy: Liability assumed under contract for Professional Health Care Services furnished by our insured. This coverage is provided on a blanket basis. PIC pays up to \$1 million /\$3 million on your behalf.

Contingent Excess Liability

Old Policy: Excluded

New Policy: PIC pays damages as a result of a professional health care incident if the Wisconsin Patients Compensation Fund (PCF) does not respond. PIC pays up to \$1 million /\$3 million on your behalf.

The benefits of this new program are state-of-the-art and very necessary in today's complex health care delivery environment! We are pleased to offer this kind of advocacy exclusively to the members of the State Medical Society of Wisconsin.

For more information, contact Alice Ballweg, Manager, Professional Liability Division, SMSISI (800) 545-0631 ext. 554 or via e-mail at: ALICEB@smswi.org. For SMS membership information, please contact Maureen O'Brien, SMS VP Membership & Professional Development, at (608) 257-6781 or (800) 362-9080, extension 231, or via e-mail at: MAUREENO@smswi.org.

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AMBULATORY CARE - Milwaukee VA medical Center seeks BC/BE general internist/family practitioner for outpatient clinic to open in Union Grove, WI, a small community located near Milwaukee and Chicago. Must have a strong interest in and the skills to provide primary care internal medicine. An interest in clinical teaching is also required, but prior teaching experience is not necessary. Requires the administrative knowledge, skill and ability to establish and organize a new clinical practice site. Current ACLS certification preferred. Milwaukee VAMC is affiliated with the Medical College of Wisconsin and clinical fac-

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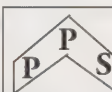
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 Call 414-255-7605 or send CV to: ERG, N88 W17015 Main Street, Menomonee Falls, WI 53051-2776. TFN

Half-time, academic staff, fiscal appointment for Physician at the University of Wisconsin-Eau Claire Student Health Service. Responsible for direct ambulatory health care to students and acts as a consultant to RNs, NPs, and MTs. Requirements include: current Medical license and ability to obtain MD licensure in Wisconsin, BE/BC in Primary Care, commitment to cultural diversity. Experience in college health or traditional family practice is preferred. Start date is August 1998. Applicants should send a letter of application, resume, three or more references (names, addresses, and telephone numbers), and a copy of MD degree, Board certification, and current medical license to: Laura Chellman, Director of Student Health Service, UWEC Health Service, Crest Wellness Center, Eau Claire, WI 54701. For priority consideration, applications must be received by February 27, 1998; however, screening will continue until the position is filled. 2/98

AMBULATORY CARE: Tomah VA Medical Center seeks a BC/BE general internist or family practitioner with a strong interest in Primary Care/Ambulatory Care to join our staff. Responsibilities include direct patient care. Excellent benefit package includes

malpractice protection, 30 days paid vacation and annuity plan. Relocation expenses. 173-acre facility includes limited on-station housing. City of 8,000 in a predominantly rural area that offers affordable real estate, good schools. Conveniently located on I-90/94 midway between Milwaukee and Minneapolis. Interested candidates should contact the Associate Chief of Staff for Ambulatory Care (11F), 608-372-1785, VA Medical Center, 500 East Veterans Street, Tomah, WI 54660. AA/EOE. 9/97-2/98

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 You'll be paid as an employee. Hourly compensation is excellent, especially relative to the volume. We can arrange for malpractice for you. Call 414-255-7605 or send CV to: ERG, N88 W17015 Main Street, Menomonee Falls, WI 53051-2776. TFN

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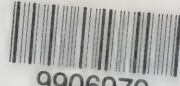
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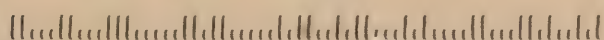




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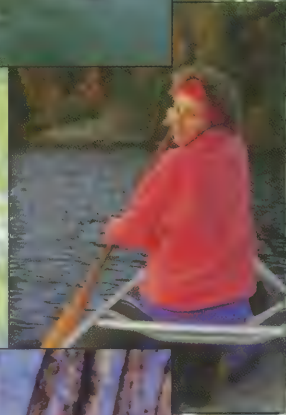
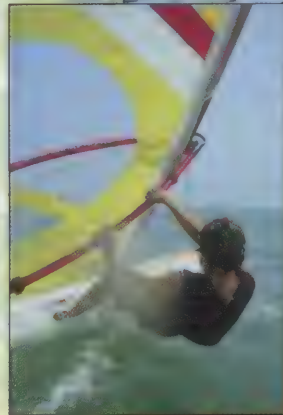
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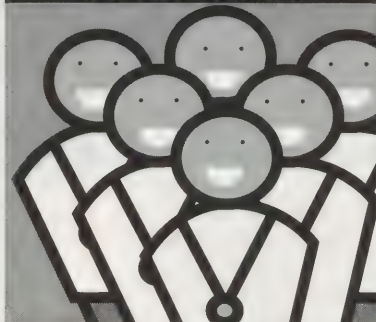
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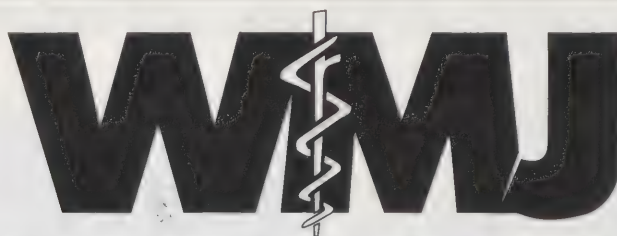
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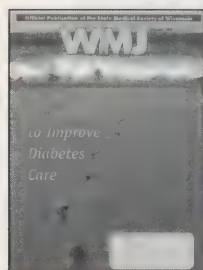


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Diabetes mellitus affects over 300,000 Wisconsin residents; people who are at increased risk for numerous, serious complications, many of which can be prevented by aggressive diagnosis and treatment. This month, the WMJ looks at opportunities for physicians and patients to improve care, reduce the burden of suffering and enhance the quality of life for people suffering from this disease.

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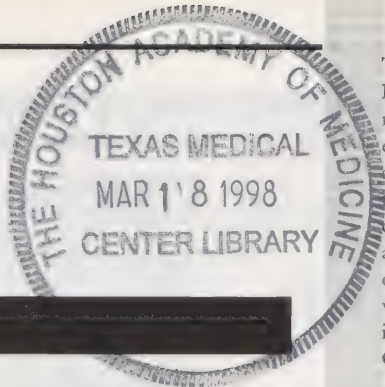
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President's Page

Strategic Planning: The Future of the SMS

by Sandra L. Osborn, MD

The 1994 Strategic Plan identified four primary objectives for the SMS: 1) physician and patient advocacy, 2) member-to-member communications, 3) member involvement, and 4) practice management.

Looking back, most of the goals set have been accomplished — the SMS is communicating better via the new explosion of technology; we are dealing with the medicine and health care factors arising in the economy and politics of our state and nation which affect how we practice; and we are serving physicians and patients, as we advocate on their behalf.



As we do every four years, it is time once again to refocus for a new era. At the most recent Board meeting in January, three hours were spent evaluating the assumptions about the future. These include government and legal, the future structure of health care delivery in Wisconsin, social and demographics, and technological assumptions. We also developed an analysis of our strengths, our weaknesses, our opportunities, and the threats that confront the SMS now and in the future.

A smaller group composed of Board members, the Executive Committee and at-large members, will focus on those concepts this spring following the Annual Meeting. To assist the Strategic Planning process, a census was mailed to all SMS members last summer to ascertain members' beliefs about the Society. The census data was very revealing (see page 5 for further details).

Ninety-eight percent of the members felt our current purpose/mission statement was still accurate and worthwhile. The State Medical Society/County Medical Society was felt to still be relevant to a large percentage of the members who responded although the majority do not consider themselves active. This is very encouraging. Our less active members did give us some ideas how to help them increase their activity. Forty-one percent felt regional meetings or events would help them to become more active. Technology was the other important method identified to increase participation with 20% citing the SMS Web site or e-mail and 14% looking to video conferencing.

Keeping this data in mind, an important opportunity for defining our future is the report developed by the Task Force on Governance Structure (see page 7), formed by the 1996 House of Delegates. The task force of physicians has worked diligently and enthusiastically over the past two years. They have sought the opinions of a great variety of thoughtful persons, both members and non-members, to help them understand how our current governance model can be improved to better serve more physicians in the state and carry out the objectives of our Society.

Their report will be presented at the Annual Meeting at 1:00 p.m. on Saturday, April 4, to which, all members are invited.

Physician and patient advocacy continue to be critical to each of us. Advocacy concerns identified by physicians have also been pre-

sented to our elected state officials (members of the state Senate, state Assembly, the Attorney General and Governor), and our elected national, county, and local officials, as well.

In recent months, SMS commissions, as part of their meetings, visited the Capitol to meet with their respective legislators and discussed the important issues confronting our profession and us as physicians and as advocates for our patients. It was a good experience and learning opportunity for legislators and physicians alike. SMS members have also communicated individually with these officials on specific issues. This involvement by the members is part of a vital society at work.

You are also able to participate in advocacy at the grassroots level by joining the SMS's bipartisan political action committee, Wisconsin Physicians Political Action Committee (WISPAC) and/or Physicians for Better Government (PFBG).

Members have said they want the Society to advocate on their behalf; however, we must remember that, as members, we comprise the SMS. We must step forward and be involved in the process of advocacy for our patients and ourselves. The SMS is looking forward to the future of the practice of medicine in our state; whatever the changes that occur in the governance model or in the objectives of the new Strategic Plan, the *members are the Society* and as the Society *we* must be the *advocates* for our patients and our profession.

EVP Report



John E. Patchett, JD

I have often referred to our 1997 census of the membership in this column. Now that we have collected and tabulated the data, it seems appropriate to review some of the highlights.

The census was just the first step, in a series of research activities, in an effort to better understand Wisconsin physicians — members and nonmembers alike — and to make sure that the SMS is of substantial value to you and your colleagues, we are asking often — and listen carefully: What can the SMS do for you?

A census was sent to every member of record in June, 1997. Over 2,100 census forms were returned, for a 25% return rate, which is excellent. We are very confident that this data accurately reflects what the membership believes about the organization.

This census data will be critical to the strategic planning process which is being undertaken this year by the Board. SMS has historically developed a strategic plan every four years. The Board began the process at its January 31 meeting. A smaller group consisting of Executive Committee members and at-large members will continue the process with a complete plan presented to the Board at its July meeting.

It is important as we go forward that every member have an opportunity to understand the data that will drive the strategic planning process.



What You Are Saying...

by Linda Syth,
Vice President Marketing & Communications

Most of the information that I want to share with you is from the composite data. Overall, the demographic differences were not significant. That fact in itself gives a very strong sense that the membership as a whole holds the same expectations for the organization.

The first part of the census was dedicated to evaluating the purpose and objectives of the organization. Ninety-eight percent of respondents agreed with the current mission statement of the SMS, developed from the 1994 strategic plan, in which four priority objectives were developed. Clearly, patient and physician advocacy continues to be the priority.

The next part of the census was dedicated to evaluating current activities, products and services that the SMS provides its members. Members were asked to evaluate based on how critical the activity/product/service was to their membership.

The scale was:

1=strongly agree

2=agree

3=neither agree or disagree

4=disagree

5=strongly disagree

Any product or service with a rating of 1.99 or below would indicate physician members strongly agree the activity/product/service was very critical to their membership (Table 1). This data supports the earlier indication of physician and patient advocacy as the top priority.

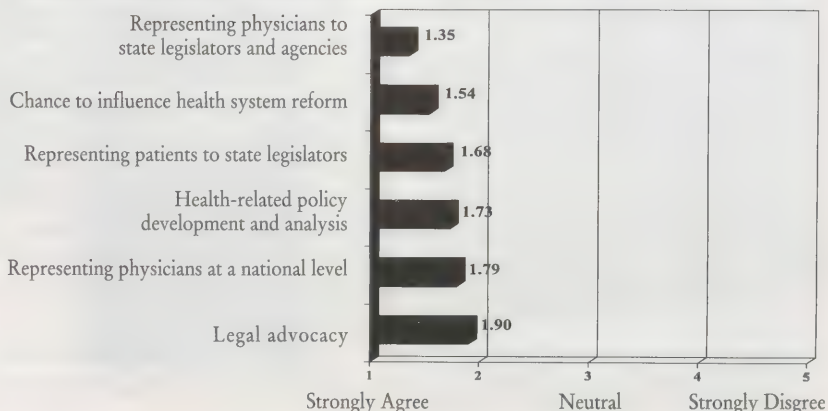
A rating of between 2.0 and 2.49 indicates members agree the activity/product/service is also critical to membership (Table 2). The majority of our current activities/products/services averaged below 2.99 meaning they are still critical to membership.

The census then asked members to evaluate new activities/products/services using the same scale (Table 3). Overwhelmingly, the most important new service was enhancing the image of physicians.

The next part of the census was dedicated to evaluating the member activity level and



Table 1. Activities/Products/Services That Rated Critical To Members



relevancy of the organization. It is not surprising that only 22% of the members consider themselves to be active. However, it is important to note that 75% consider the SMS to still be very relevant to their practices.

Using this data along with the marketing plan, approved by the Board in July, 1997, we developed the theme, "Working together, physicians can determine the path of medicine." We have also made sure our efforts have stayed true to the interests of the membership by focusing on physician and patient advocacy, professionalism and enhancing the image of medicine.

If you want a copy of the census results or results by a specific demographic segment, please contact me at (800) 362-9080 ext.

202, or via e-mail at:

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Table 2. Activities/Products/Services That Were Critical To Members

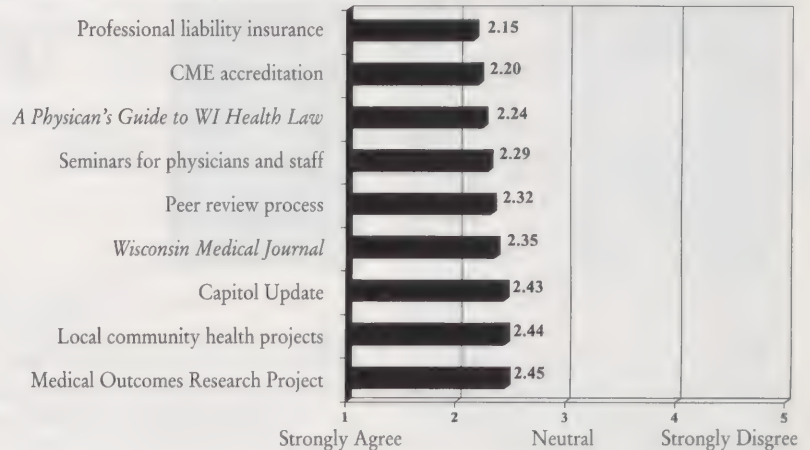
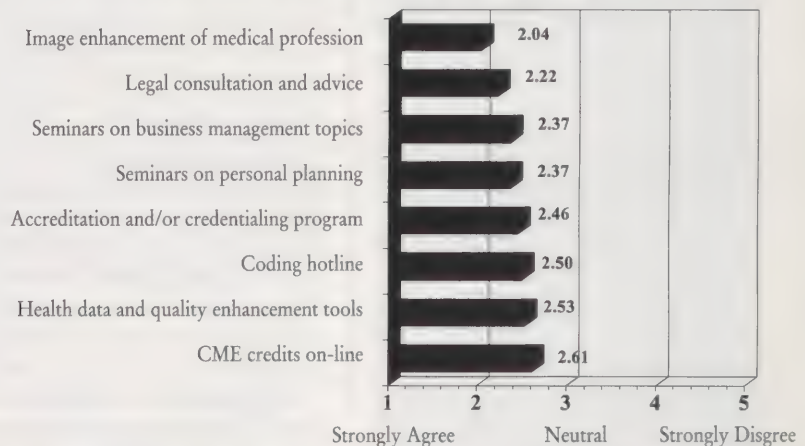


Table 3. Valuable New Products/Services to Members



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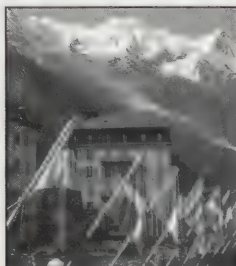
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SMS Report

Task Force on Governance Structure Report to the House of Delegates

by Gregory A. Shove, MD

The Task Force on Governance Structure was created by the House of Delegates in response to a request from the former Executive Vice President, Thomas L. Adams, to evaluate the structure of the SMS. The charge of the task force was to evaluate:

- the need for a House of Delegates and component societies
- the basis of representation to election, size, and operation of the Board of Directors
- establishing a governance structure which appropriately represents the many facets of health care practices within the membership
- establishing a process that ensures governance will continue to evolve
- the role of and need for a nominating committee

The following report of the Task Force on Governance Structure of the State Medical Society of Wisconsin will ultimately be discussed at the House of Delegates. Your task force has put in many days of work assimilating and analyzing information, discussing numerous options, and negotiating compromises until a general consensus was reached on the recommendations you are about

Gregory Shove, MD is the Chair of the Task Force on Governance Structure. Dr. Shove is a rheumatologist at All Saints Medical Group in Racine, Wisconsin.

to review. The next step will be YOUR review, analysis and discussion of our recommendations and, in 1999, a House of Delegates decision regarding implementation of the changes.


Through these recommendations, the task force intends to use modern technology to energize and streamline the decision-making process of the SMS so that it will better serve its dedicated physician members and our patients in the years ahead. In formulating the recommendations, the task force evaluated threats to the future of the SMS, such as the increasing corporatization of medicine, the fragmented focus of members, and the increasing time demands on all physicians. The task force strived for a model that will unify physicians and respond quickly to their needs, utilize and disseminate information, both within and outside, the House of Medicine, while maintaining a democratic process, and make effective use of members' limited time.

An important aspect of the task force process was reviewing the SMS core purpose and core values to define our envisioned future for the SMS **to become the recognized leader in Wisconsin for health care information and decision-making and an organization physicians believe is essential to join.** We propose more frequent (quarterly) meetings of delegates to accomplish the pressing business of the SMS, leaving time at the annual meeting for featured

speakers to attract a diverse array of members from around the state. The new structure should facilitate members' input (yes, that means you) and provide the members with various means of obtaining information and assistance from the SMS.

The task force's work is now done. We now present you with our recommendations and ask for your critique. Bear in mind that Samuel Johnson once said, "Nothing will ever be attempted, if all objections must first be overcome."



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Task Force on Governance Structure : Report to the House of Delegates - 1998

Pursuant to action taken by the 1996 State Medical Society House of Delegates, the Task Force on Governance Structure was created. Its charge was to study the current governance structure of the State Medical Society and make recommendations for potential change. The study included, but was not limited to, the following areas of the Society's structure: (1) the need for the House of Delegates and component societies; (2) the basis of representation to election, size and operation of the Board of Directors; (3)

the establishment of an SMS governance structure which appropriately represents a membership engaged in the many faceted types of medical practices utilized in various health care delivery

areas; (4) the establishment of a process which assures to the greatest extent possible that the SMS governance structure will appropriately evolve to meet the needs of the membership. In addition, the House asked the task force to review the process of election to office within the Society and to review the role of the Nominating Committee, the need (or not) for such a committee, the demographic and historical "understanding" used in selecting candidates for certain offices and make recommendations as warranted.

The task force presents the following recommendations for consideration:

HOUSE OF DELEGATES

Recommendation: Retain the House in the modified form described below, making it more time responsive, and less cumbersome and expensive to operate.

Overview of Recommendations for a Modified House:

- Downsize the House to a maximum of 100 participants which will be called the Board of Delegates. Its role will be to establish positions for SMS on external policy issues through a defined policy development process, to ratify a slate of at-large representatives to serve on the SMS Executive Board, to serve as the primary information conduit among the SMS and to participate in strategic planning.
- Modify how representation in the House occurs, with 1/3 of the delegates from traditional geographic areas (probably the 33 state senate districts), 1/3 at-large (anyone interested in running; identified through a nominations process; elected by membership of the state for 3-year terms) and 1/3 drawn from constituencies to be determined (likely to include primary care, clinics, women, IMGs, young physicians, etc.); no resolution on whether or not to have slot-seats.
- Term of office is three years and there will be a maximum limit of three, three-year terms. A hiatus of three years is required before returning. There will be accountability for participation and renomination will be tied to participation and performance.
- There will be no proxy voting in the Board of Delegates.
- This body meets four times a year, twice in person and the balance through the use of technology (teleconferencing, video-conferencing, etc.).
- The in-person meetings would

be rotated across the state to ensure more opportunity for interaction between the House and the Membership.

- The House of Delegates and Executive Board would meet together once a year, creating an opportunity to bring people from around the state together; this would likely occur in conjunction with an Annual Forum/Meeting and feature a nationally-recognized speaker on issues of medical interest; the event would also be used to create/enhance connection to specialty societies, which would be encouraged to hold their own events in concert with the SMS joint meeting.
- Reference committees (bodies of the House) and commissions (bodies of the Board) will be merged into Ref-Coms which will evaluate policy issues and develop recommended actions or positions for consideration at the next session of the House. This activity would be ongoing throughout the year rather than annually just before the House meets.
- The member at-large representation on Ref-Coms would be broadened and Board participation in these groups would be decreased. Individuals wishing to participate in Ref-Coms are identified by the Leadership Development Committee with input from staff. Names are submitted by the Vice Chair in concert with the Speaker for ratification by the Board of Delegates.
- An open resolution process would be implemented whereby a resolution could be submitted at any time during the



year. Such resolutions would be subject to a triage process for assessment of where the resolution should be directed for evaluation and recommendations for action.

- There is value in providing options for non-physicians to participate in a non-voting manner in the policy process. The best approach to accomplishing this is yet to be determined.

BOARD OF DIRECTORS

- The Board of Directors to be called the Executive Board, would be reduced from the current Board of 30 plus officers to a maximum of 22.
- There will be an Executive Committee of seven (7): Chair of the Board, Vice-Chair of the Board, Immediate Past President of the Society (who also serves as Speaker of the House), President, President-Elect (who serves as Vice Speaker of the House), Treasurer, and Executive Vice President (non-voting). The Chair, Vice Chair and Treasurer may not serve as Delegates in the Board of Delegates.
- The balance of the Executive Board is made up of fifteen (15) members with 1/3 drawn from the Board of Delegates, 1/3 may come from Board of Delegates or somewhere else, 1/3 may not come from the Board of Delegates. These positions are identified by the Nominating Committee and ratified by the Board of Delegates.
- The role of the Executive Board is more operational/oversight--an extended executive committee charged with ensuring that programs and strategies are developed to implement positions taken by the Board of Delegates, to oversee operation of the programs, governmental affairs and resources of SMS, to hire the Executive Director and to authorize the annual budget.
- Terms of office are for three years with a maximum of three

consecutive terms before a hiatus of three years is required. The exception to this limitation is movement from a board member position into an officer's position.

- Standing committees of the Executive Board will include Finance and Membership; other committees, as needed, may be considered. The Executive Board, or a subset thereof, is the group responsible for the triage process on resolutions.
- Additional mechanisms to create input during the year will need to be created. They include, but are not limited to:
 - Ref-Coms which may meet by conference call; announced topic around a specific question, reactions solicited -- individuals requested to respond, creating a broader level of participation than current commission structure.

Electronic discussions on the members-only portion of the web site.

INFORMING THE PROCESS¹

The creation of mechanisms to bring information to the table for decision-making is an underlying assumption of this new governance design. Elements to informing the process include, but are not limited to:

- Quarterly regional meetings
- Member-only site on WISMED
- Posting ongoing resolutions throughout the year
- A triage process to assess and assign accountability on resolutions which can be forwarded at any time during the year
- Direct member feedback to committee members or the board via e-mail
- Dedicated chat rooms
- Published results of decisions
- Posting Board reports on the member page

KEY ELEMENTS OF RECOMMENDATIONS INFORMATION AND KNOWLEDGE STRUCTURES

Develop a variety of systems to collect, analyze and organize relevant information to support knowledge-based decision-making throughout the organization, including:

Structured and informal continuous needs assessment processes (e.g. surveys, focus groups, forums, town meetings, interviews).

Structures to support the study and analysis of complex issues, such as Ref-Coms, etc.;

Use of a variety of advisory councils as appropriate to obtain input from experts (physicians and non-physicians);

Information systems -- with access by decision-makers and members to a relevant and comprehensive information/knowledge base;

A variety of distribution mechanisms to share relevant information;

MECHANISMS TO CREATE DIALOGUE



Develop a number of mechanisms to create dialogue on issues among interested members and SMS leadership, thus strengthening the 'connection' between the organization and members:

Conduct regional meetings/forums on key issues; open to all members within the region; regions based on state senate districts or current SMS board districts;

Use video conferencing occasionally to conduct member forums across regional boundaries on issues of state-wide interest;

Use the web page and on-line communications, e.g. chat rooms, discussion groups;

Expand use of commissions, task forces, and ad hoc committees, with the use of communications technologies as appropriate;

Develop effective two-way communications with specialty societies, other medically-focused groups and other key stakeholders when relevant.

AN OPEN POLICY/ RESOLUTION PROCESS

Revise the policy/resolution process of SMS so that the process:

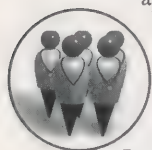
Is widely understood and utilized by individuals, groups, and organizations within the SMS structure;

Is responsive and sensitive to evolving association and member needs;

Allows opportunity for broad member involvement -- in submitting resolutions; in dialogue on important issues; in a process that gathers opinions from interested constituencies/individuals;

Supports knowledge-based decision-making through appropriate research and relevant background information provided to decision-makers along with resolution;

Has a way of determining how quickly and who (i.e. a triage-type approach) should address an issue or resolution, e.g. this might be the responsibility of the Executive Committee;



Includes clearly defined roles and responsibilities for each governance and decision-making body.

MEMBERSHIP STRUCTURE

Build strong collaborative relationships with county/local societies, including such areas as joint billing, member databases, programs, etc.;

Give physicians the choice of joining both SMS and their local/county society or only one of the two if they so choose, i.e. eliminate the current requirement of joining both in order to join one;

Strengthen the research capabilities of SMS to provide ongoing, relevant information on member and non-member needs and expectations, the impact of large group practices on those expectations, the nature of the state/local relationship, etc.;

Maintain the current legal relationship between SMS and local/county societies.

NOMINATING COMMITTEE

The task force recommends that a Nominating Committee be charged with the responsibility of developing a slate of candidates for open positions on at-large seats of the Board of Delegates, the at-large positions of the Executive Board, officers, and the AMA delegation. Criteria for open seats would be established by the Executive Board as part of its charge to the Nominating Committee. This is not a committee of the Board of Delegates.

This committee is a Nominations/Leadership Development Committee which may have two subsets.

The nominations portion of the committee is a maximum of 13-15 members, chaired by the Immediate Past President. Eight (8) of the members will come from the eight existing SMS regions, with regions determining how they identify the person for the Nominating Committee. The balance of the membership on the committee will be developed to reflect the diversity that the Society is trying to achieve, likely to include someone with primary care focus, IMG, woman, different practice perspectives (e.g. large clinics). Three-year terms, with a limit of one term of service.

Leadership development portion charged with continually identifying candidates for leadership roles in the Society. Three-year terms, but no term limits established for service.

In the first year, five (5) members will be appointed for one year terms, five (5) members for two year terms, and five (5) for three year terms. The first committee will be appointed by the Immediate Past President and an advisory committee.

TIME LINE FOR IMPLEMENTATION

Submitted to House in 1998; voted on in 1999; implementation of

structural changes in 2000.

An "evolutionary model," it would also create a "Darwin Commission" to review the new model at key points to assess such issues as whether size is still appropriate; whether separation of external from internal is still appropriate; etc. The commission would periodically look at the key questions around governance and make recommendations to the Board of Delegates.

Members, Task Force on Governance Structure: Greg Shove, MD, Chair, Racine; Sean Benham, MD, Two Rivers; Gregory Buck, MD, Wauwatosa; Clarence Chou, MD, Mequon; Ali Choucair, MD, Marshfield; Richard Day, MD, Madison; Lucille Glicklich-Rosenberg, MD, Milwaukee; Gerald Govin, MD, Milwaukee; Bruce Kraus, MD, Columbus; Jack Lockhart, MD, La Crosse; Thomas Luetzow, MD, Watertown; John Mielke, MD, Appleton; Robert Phillips, MD, Marshfield; Alan Schwartzstein, MD, Oregon; Daniel Sherry, MD, Ellsworth; Kathleen Wick, MD, Beloit.

In order to implement the task force recommendations, specific language needs to be developed over the coming months which would be incorporated as proposed amendments to the SMS Constitution and Bylaws. Amendments germane to the proposed language would be considered at the 1999 House of Delegates Annual Meeting.

¹ This approach is predicated on increasing access to electronic infrastructure on the part of members. As a way of encouraging that, the task force suggests that SMS explore the value of group buying power on equipment at a reduced rate, and explore offering counties a co-op approach to developing equipment access. It also presumes that SMS will provide access to technology to those directors who do not currently possess it.

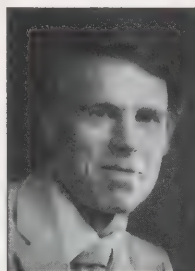
Who's In The News



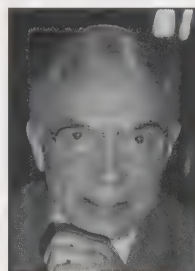
Joseph Bachir, MD



David Braunreiter, MD



David Danahy, MD



Ihor Galarnyk, MD

Gerald Adler, MD, an orthopedic surgeon and sports medicine specialist with the Wilkinson Medical Clinic in Oconomowoc, was elected chief of surgery at the clinic. He received his medical degree from the University of Wisconsin Medical School and completed a five-year orthopedic residency in Grand Rapids, MI.

Karl W. Ayer, MD, a family physician, joined the staff at Lincoln Avenue Medical Associates, Fennimore. Doctor Ayer earned his medical degree at the UW-Madison and completed his residency with UW Family Medicine, Madison.

Joseph Bachir, MD, surgeon at the Marshfield Clinic-Ladysmith Center, has invented and patented a biopsy device that promises to be more accurate and at the same time gets a larger tissue sample for lab analysis. The Marshfield Clinic, which holds the patent rights for the invention, is looking at developing a prototype.

Karen Beimborn, MD, a family physician, joined the La Salle Clinic, Clintonville. She received her medical degree from the Medical College of Wisconsin and served her residency at St. Luke's Family Practice in Milwaukee. Doctor Beimborn will also serve the area as medical director for the Rural Health Center in Clintonville.

Susan Bernstein, MD, a pediatrician, has joined St. Mary's Medical Clinic, Milwaukee. She is

board certified in pediatrics and neonatology. Doctor Bernstein earned her medical degree from Northwestern University, Chicago and did her internship and residency at the University of Chicago.

Family physicians, **Robert T. Bodensteiner, MD**, with the General Clinic of West Bend; **Richard R. Clark, MD**, with All Saints Medical Group, Racine; **Gerald W. Favret, MD**, **David Go, MD**, and **Robert Merrill, MD**, of Marinette-Menominee Clinic; **Fredrick C. Gremmels, MD**, of Watertown Family Practice; **Kay Ann Gruling, MD**, of Wausau Medical Center-Marshfield Clinic System; **Aaron J. Hanesworth, MD**, with Gundersen Lutheran Tomah Clinic; **Richard F. McMahon, Jr., MD**, of Waupun; **Calvin D. Nogler, MD**, with the Pound Community Medical Clinic; **John Peters, MD**, with Agnesian HealthCare's Fond du Lac Regional Clinic; **Frank M. Ralls, MD**, of Oconto Memorial Hospital, in Appleton; **Robert F. Tyree, MD**, of Marshfield Clinic-Mosinee Center; and **David M. Worley, MD**, from the Mariner Medical Clinic, in Superior, were named Diplomats of the American Board of Family Practice. This status requires an intensive written test of the physician's abilities in pediatrics, internal medicine, surgery, obstetrics, gynecology, psychiatry, prevention and other aspects of family practice.

David A. Braunreiter, MD, a family and sports medicine specialist with Mercy Health System's Sports Medicine Center in Janesville, received the Certificate of Added Qualifications in Sports Medicine. He works with seven area athletic teams, including Janesville Parker and Janesville Craig and is team physician for Beloit College and the Beloit Snappers. Doctor Braunreiter served as the physician for Janesville's 1997 YMCA Triathlon. He earned his medical degree from the Medical College of Wisconsin and completed his residency at Deaconess Hospital in St. Louis, MO. Doctor Braunreiter completed a fellowship in primary care sports medicine at Cleveland Clinic, in Ohio, during which he assisted with medical coverage for the Cleveland Browns football club, the Cleveland Cavaliers basketball club and the Cleveland Ballet Company.

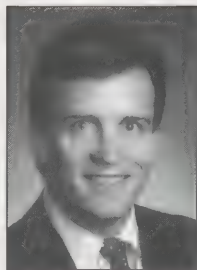
Asriani Chiu, MD, has been appointed assistant professor of medicine and pediatrics, in the division of allergy and immunology at the Medical College of Wisconsin. Her clinical interests include food allergy evaluation, stinging insect testing, immunotherapy drug and vaccine testing, and desensitization and evaluation for primary immunodeficiencies. In addition to asthma and allergy education and patient care, her research interests have included



Who's In The News



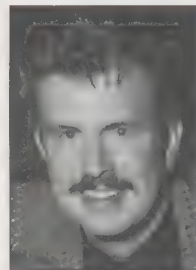
William Hocking, MD



David Janssen, MD



Jean Johnson, MD



Steven Kincaid, MD

latex allergy. Doctor Chiu completed her fellowship in allergy and immunology and her internal medicine residency at the Medical College of Wisconsin.

Daniel Danahy, MD, a cardiologist, has been elected director of the Dean Health Plan Board. Doctor Danahy earned his medical degree at the University of Rochester, Rochester, NY. He completed his residency at Georgetown University

Hospital, Washington, DC and the University of Washington Hospital, Seattle, WA.

Patricia J. Dolhun, MD, of Shorewood, has joined the Columbia Primary Care Physicians, where she specializes in obstetrics and gynecology. She received her medical degree from the University of Wisconsin and completed her residency at Kaiser Foundation Hospital, Los Angeles.

Ihor Galarnyk, MD, a family physician from Plain, was honored for 35 years of membership in the American Academy of Family Physicians at its 49th Annual Scientific Assembly in Chicago. Doctor Galarnyk earned his medical degree from the University of Manitoba, Canada. He completed his internship at Winnipeg General Hospital and residency at Misericordia General Hospital, Winnipeg, Canada.

Steven Goedderz, MD, a family physician, joined Chain O'Lakes Family Clinic in Wau-paca. He earned his medical

degree from Universida Technologica De Santiago, Santo Domingo, Cominican Republic. Doctor Goedderz completed his residency at St. Catherine's Hospital, Kenosha. He is certified in advanced cardiac life support (ACLS), advanced trauma life support (ATLS), and basic life support (BLS).

William G. Hocking, MD, an oncologist/hematologist, was re-elected as President of Marshfield Clinic. He received his medical degree from Tulane University School of Medicine, New Orleans, LA. Doctor Hocking completed his internship and residency in internal medicine and a fellowship in oncology/hematology at UCLA. Also elected were emergency medicine specialist **Dean T. Stueland, MD**, as Vice President; oncologist/hematologist, **Douglas J. Reding, MD**, as Corporate Secretary; family physician, **Richard A. Leer, MD**, as Treasurer. Executive Committee members are family physician **Thomas Hupy, MD**, rheumatologist **Lon Blaser, DO**, internal medicine specialists **Theodore Praxel, MD** and **Thomas C. Gabbert, MD**; and colon-rectal surgeon **Timothy J. Wengert, MD**.

David Janssen, MD, a surgeon with Fox Valley Plastic Surgery in Oshkosh, recently became a Fellow of the American College of Surgeons. Doctor Janssen received his medical degree from the University of Wisconsin Medical School and completed his residency at Saginaw Cooperative

Hospital, Saginaw, MI and George Washington University School of Medicine, Washington, DC.

Jean Johnson, MD, a family physician at La Salle Clinic of Ripon, was honored for 25 years of membership in the American Academy of Family Physicians. She earned her medical degree from the University of Wisconsin-Madison and completed her family practice residency at Syracuse, NY.

Allen Kemp, MD, an anesthesiologist, was elected chairman of the board of Dean Health System. Also elected were **William Brandt, MD**, an internist with Janesville Riverview Clinic, Ltd., as vice chairman and **Robert Gilbert, MD**, an internist with East Madison Clinic, as secretary/treasurer.

Abdul Qhayum Khan, MD, an anesthesiologist, joined the staff of Beloit Memorial Hospital. Doctor Khan graduated with honors from Osmania University in Hyderabad, India. He completed his residency at Texas Tech University Health Science Center in Lubbock, TX. Before coming to Beloit, he worked at the SW Medical Center in Liberal, KS and Appalachian Regional Health Care System in east Kentucky. Doctor Khan is a member of the American Society of Anesthesiologists.

Steven Kincaid, MD, a pediatrician, and **Theresa Wang, MD**, a family physician, joined Reedsburg Physicians Group. Doctor **Kincaid** earned his medical degree



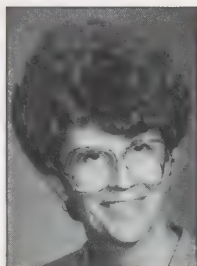
Who's In The News



Christopher Koepl, MD



Amy Rosenblatt, MD



Dorothy Skye, MD



Jeffrey Stitgen, MD

from the University of Wisconsin and completed his residency at Children's Hospital of Wisconsin, Milwaukee. **Doctor Wang** earned her medical degree at the University of Alberta, Edmonton, Canada. She completed her residency at Jewish General Hospital, Montreal, Canada.

Christopher G. Koepl, MD, an internal medicine physician with Rhinelander Regional Medical Group, was elected to Ministry Health Care's Board of Directors. He played an integral role in Rhinelander Regional Medical Group's affiliation with Ministry's Physician Division. Doctor Koepl earned his medical degree from the University of North Carolina, Chapel Hill. He completed his residency and internship at the University of Iowa Hospital, Iowa City.

Eric Luy, MD and **David Pryba, MD**, both internists, joined the staff at Whitnall Clinic, Brown Deer. Both earned their medical degrees and completed their residencies at the Medical College of Wisconsin. **Doctor Luy** received his Bachelor of Science degree in medical science, magna cum laude, from the University of Wisconsin-Milwaukee. **Doctor Pryba** completed his premedical education at the University of Wisconsin-Milwaukee in three years, winning election to the dean's list every year.

Michael Michalske, DO, a general surgeon, has joined the Marshfield Clinic-Merrill Center.

He received his medical degree from Kirksville College of Osteopathic Medicine in Kirksville, MO. Doctor Michalske served a residency in general surgery at Pontiac Osteopathic Hospital in Pontiac, MI.

N. Carter Noble, MD, a family physician, joined Appleton Family Health Center as an assistant professor with the Department of Family Medicine of the University of Wisconsin Medical School. He earned his medical degree from the University of Wisconsin and completed his internship at the University of Wisconsin Eau Claire Family Practice Residency.

Cynthia Palabrica, MD, an obstetrician/gynecologist, has opened a new office at HLS Medical Services. She received her medical degree from Creighton University, Omaha, NE and completed residencies at Creighton University and Southern Illinois University, Springfield, IL.

Lisa Rolstad, MD, a pediatrician, has joined East Side Pediatrics, Shorewood, a division of Children's Medical Group. She received her medical degree from the Medical College of Wisconsin, and completed her pediatric residency at Children's Hospital of Wisconsin, Milwaukee.

Amy M. Rosenblatt, MD, a pathologist at Consultants Laboratory of Wisconsin Inc. and Fondu Lac Pathology, Ltd., became a Diplomat of the American Board of Pathology in cytopathology. She earned her medical degree

from the University of Wisconsin and completed her residency at the Medical College of Wisconsin Affiliated Hospitals, Milwaukee.

David J. Schifeling, MD, an oncologist/hematologist, joined the medical staff at the Regional Cancer Center at Sacred Heart Hospital, Eau Claire. He earned his medical degree from the University of Chicago Pritzker School of Medicine, Chicago. Doctor Schifeling served a residency in internal medicine at the Medical University of South Carolina, Charleston, and was an American Cancer Society Fellow and Research Fellow in hematology/oncology at the Bowman Gray School of Medicine in Winston-Salem, NC.

Dorothy Skye, MD, an obstetrician/gynecologist at Rhinelander Regional Medical Center, has received a \$50,000 grant from the U.S. Agency for International Development to fund a limited one year health partnership in Buryatia, in the Siberian portion of Russia. The grant will support a maternal and child health project through which U.S. health care givers will work with and train Russian health care providers. Doctor Skye will conduct training in maternity care and labor and delivery, while **Paul Wegehaupt, MD**, a pediatrician at Rhinelander Regional Medical Center, will teach the American Heart Association Newborn Resuscitation program which has been translated and adapted for use in



Who's In The News



Patrick Turski, MD



Bruce VanDommelen, MD



Theresa Wang, MD



Paul Wegehaupt, MD

Russia.

Ronald Sokovich, MD, a surgeon, has become a Fellow of the American College of Surgeons. He practices at Mercy Clinic East in Janesville and Mercy Harvard Medical Center in Harvard, IL. Doctor Sokovich earned his medical degree at Southern Illinois University, Springfield, IL and completed his residency at Rush Medical Center, Chicago.



Jeffrey Stitgen, MD, an orthopedic surgeon, has been named Chairman of the Board at Dean Health Plan. He earned his medical degree from the University of Wisconsin and did his internship and residency at the Medical College of Ohio, Toledo.

Todd Swenson, MD, surgeon and sports medicine specialist, is now board certified in orthopedic surgery. He received his medical education from the UW-Madison and completed his internship in general surgery in 1990, residency in 1994 and fellowship in sports medicine in 1995 from the University of Pittsburgh.

Robert Turner, MD, a cardiologist/internal medicine specialist at Reedsburg Physicians Group recently earned 125 continuing medical education credits from the Albert Einstein College of Medicine in New York this past year. The credits were earned in the areas of internal medicine, cardiology, infectious disease and gastroenterology. Doctor Turner earned his medical degree from

the University of Wisconsin and completed his residency at the University of Iowa, Iowa City.

Patrick Turski, MD, a radiologist, was appointed the John H. Juhl Professor and Chair of the Department of Radiology at the University of Wisconsin Medical School. Doctor Turski is a Fellow of the American College of Radiology and a senior member of the American Society of Neuroradiology. He received a grant from the National Institute of Health to investigate "Time Resolved Contrast Enhanced 3D Magnetic Resonance Angiography." He earned his medical degree from Rush Medical College, Chicago and completed his internship and residency at the UW Hospital and Clinics, Madison.

Bruce A. Van Dommelen, MD, an orthopedic surgeon, joined Sheboygan Orthopaedic Associates, S.C. in January. He specializes in arthroscopic and sports medicine surgery and rehabilitation. Doctor Van Dommelen earned his medical degree from Wayne State University, Detroit and completed his internship and residency at the Henry Ford Hospital, Detroit.

Thomas A. Wolfe, MD, a family physician, was named the medical director of Rib Mountain Urgent Care Center, Wausau. He earned his medical degree from Indiana University, Indianapolis and completed his residency at Southwestern Michigan Health Education Center, Kalamazoo,

MI. Doctor Wolfe completed a fellowship in obstetrics and family medicine at Spokane Family Medicine, Spokane, WA.

AMA Awards

The Wisconsin Physicians listed below recently earned the AMA's Physician Recognition Award. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations. The • indicates members of the SMS.

- John E. Agens, MD
- William D. Engber, MD
- Susan M. Higgins, MD
- Martin L. Janssen, MD
- Wahab A. Kazi, MD
- James W. Knauf, MD
- Thomas A. Lingen, MD
- John W. McDonough, MD
- Mary E. McGrath, MD
- James G. Moede, MD
- H. James Nickerson, MD
- Michael J. O'Neill, MD
- Sushrut R. Patel, MD
- John A. Porter, MD
- Michael J. Rizzo, MD

Welcome New Members

The individuals listed below were recently elected to SMS membership by their county medical societies. We are pleased to welcome them to the SMS.

Dane

Carlos A. Alvarado-Valdis, MD
Daniel H. Arndt, MD
David T. Atwell, MD
David Bleidorn
Ralph Froelich, MD
Robert A. Golden
Steven M. Jacobson, MD
James D. Maloney, MD
James Goodell Olson, MD
Joel D. Wacker, MD
John C. Yost, MD

Oneida-Vilas

Michael J. Fallon, MD
Michael J. Monson, MD

Ozaukee

Anthony M. Griffay, MD
Richard K. Karr, MD
Lorelle L. Kramer, MD
Gregory Reiser, MD

Pierce-St. Croix

Mark R. Druffner, MD
Colin J. Drury, MD
Mark J. Giovanelli, DO
Glen Hoberg, DO

Polk

Arnold S. Potek, MD

Waukesha

Amy Caruso Attwell, MD
Mark A. Bauer, MD
William J. Boehm, MD
Theodore R. Bonner, MD
Sue Fregien, MD
Arun Mickey Gadhoke, MD
Tracy M. Lewis, MD
Darin A. Maccoux, MD
Steven B. McCann, MD
Gregory M. Moyer, MD
Connie L. Richter, MD
Susan M. Sarracino, MD
Philip L. Sonderman, MD
Joseph Stoeckl, MD
Kenneth J. Urlakis, Jr., MD
Karen M. Wegner, MD
Elaine M. Worcesher, MD

Who's In The News

Physician Citizen of the Year Award Winner

The Physician Citizen of the Year award honors recipients for the uncompensated civic, cultural, economic, charitable, and health care services they have provided to their local or state communities, recognizing those who have given their time and talents to improve conditions in our state.

Implemented in 1982 as a colleague-nominated award, the Physician Citizen of the Year award's annual nomination process was opened to the public in 1991. The result was an overwhelming outpouring of admiration and affection for Wisconsin's physicians. Each year since then, based on these nominations, the State Medical Society's Commission on Public Information selects up to eight award recipients from various SMS districts in the state.

Frank Springer, MD, of Elmwood, is one of eight 1997 SMS Physician Citizen of the Year Award recipients. Doctor Springer was recognized for his various community activities, his membership on the local school board and nursing home board and his service as ambulance medical director. Doctor Springer, a family physician at the Red Cedar Clinic in Elmwood, is well known in his community for still making house calls as a full-time physician. He has served his hometown of Elmwood for close to fifty years and is a member of the SMS Fifty Year Club.



GENERAL SURGEON NORTH OF CHICAGO

Progressive midwestern hospital organization seeks high caliber general surgeon with personality, vision and superior surgical skills to expand successful specialty practice. Situation provides significant patient volume generated through marketing and key persons to deal with time consuming paperwork. Alas, the freedom to focus on doing surgery! Well trained medical personnel and proficient support staff in place to assist surgeon in team approach. Mainly elective surgical caseload means minimal call-ins, as well as good schedule flexibility. Carefully selected candidates must be compassionate, quality oriented, cooperative and board certified. Interests in research and experience in major GI cases beneficial with desire to master additional techniques. A financially rewarding compensation packages with benefits will be offered. Candidates interested in this highly competitive position should send their CV without delay to: Patrice Streicher, 9910 W. Layton Avenue, Greenfield, WI 53228, Toll-free: (800) 338-7107, Fax: (414) 427-7251, E-mail: fha@execpc.com, Internet: www.execpc.com/~fga.

In Remembrance

Opel, D. Douglas, MD, 52, died January 24, 1998, at the Sheboygan Memorial Medical Center. He earned his medical degree at the University of Illinois, Chicago and completed his residency at Mayo Clinic, Rochester, and then served in the US Air Force at Richards-Gebauer Air Force Base, Kansas City, MO from 1974-1976. He was a pediatrician at the Sheboygan Clinic for 21 years.

Doctor Opel is survived by his wife, Clare; six children, Melanie, Molly, Douglas John, Daniel and Dayton, all at home; and D. Darren, of Chicago, IL.

Pinegar, Kenneth G., MD, 90, a general practitioner from Marinette, passed away on December 31, 1997. He earned his medical degree from Northwestern University Medical School in Evanston, IL and did his internship at Lutheran Deaconess Hospital in Chicago. Doctor Pinegar began his practice in 1932 and was instrumental, along with three other doctors, in forming the Marinette Medical Clinic. He retired in 1986 after 54 years of service to the community of Marinette.

Doctor Pinegar was a member of the Marinette-Florence County Medical Society where he served as its secretary and treasurer for more than 20 years and was educational coordinator for the local rescue squad. He received awards from family physician and continuing education associations and served on former Wisconsin Governor Warren Knowles' trade missions to South America in 1969 and the South Pacific in 1970. Doctor Pinegar was a member of the 1982 SMS 50 Year Club.

Doctor Pinegar is survived by three daughters, Nonie Johnson, of Marinette; Michal Jean Mon-

tague, of Green Bay, and Mary Jo Zilisch, of Appleton; 18 grandchildren; and 19 great-grandchildren. He was preceded in death by his wife, Norah; two children, Kenneth and Patricia; and a grandson, Brian.

Ruch, Donald M., MD, 86, passed away on January 15, 1998. Doctor Ruch was a dermatologist in Milwaukee for 41 years. Doctor Ruch earned his medical degree from the University of Rochester School of Medicine, in Rochester, NY, and completed his internship at Strong Memorial Hospital in Rochester. He completed his residency at the Mayo Clinic.

Doctor Ruch was the president of the Wisconsin Dermatological Society in 1960, president of the Milwaukee Academy of Medicine in 1964, assistant clinical professor of dermatology at Marquette University from 1947-1965, a Fellow of the Mayo Clinic and the American College of Physicians. Doctor Ruch was a member of the 1991 SMS Fifty Year Club.

Doctor Ruch is survived by his wife, Margaret; two sons, Robert, of Des Moines, IA and William, of Bayside; and eight grandchildren. He was preceded in death by a daughter, Barbara.

Stemper, John A., MD, 79, a psychiatrist from Shorewood, died January 19, 1998. He earned his medical degree from Marquette University and completed his residency at Columbia Hospital, Milwaukee. He served in the US Army from January 1944 through September 1946.

Doctor Stemper is survived by his wife, Gert; seven children, Patricia Elsener, Jay, Frank, Suzanne Johnson, Mergee Allgood, Joan Modrinski, and Kristine Wilson; and 20 grandchildren.

Stewart, William Sinclair, IV, MD, 76, passed away at his home in Hartford, WI on January 16, 1998. He earned his medical degree from Duke Medical School, Durham, NC and completed his surgical residency at Johns Hopkins University, Baltimore, MD. Doctor Stewart served in the US Navy as an orthopedic surgeon during World War II. He was a 33 degree Mason, a Shriner, and a Lion. He volunteered his services at the Shriner's Cripple Children's Hospital. Doctor Stewart was a member of the American Academy of Orthopaedic Surgeons, the AMA, and was honored in 1995 by the SMS for his 50 years of medical service.

Doctor Stewart is survived by five children; Mildred Stewart, Latane Sanders, Martha Stewart, William Stewart V, and Kathryn Jachna; three grandchildren and two great-grandchildren. He was preceded in death by his wife, Mildred.

Thomson, Neil Reuss, MD, 72, a pediatrician from Whitefish Bay, passed away at his home on January 14, 1998. Doctor Thomson practiced in Whitefish Bay for 40 years. He earned his medical degree at Marquette University; completed his internship at Columbia Hospital, Milwaukee and residency at Milwaukee Children's Hospital.

Doctor Thomson is survived by his wife, Katherine; five children, James, Elizabeth Bolling, Katherine, Mary Carpenter, and Robert; and five grandchildren.



Essential Diabetes Mellitus Care Guidelines

Prepared by Wisconsin Diabetes Advisory Group

Diabetes is a serious, common, costly but controllable disease affecting over 300,000 people in Wisconsin. People with diabetes are at increased risk of numerous complications, including blindness, kidney disease, amputations, heart disease, and stroke. Many of these adverse outcomes can be prevented by an aggressive program of more preventive care, prompt identification of problems, early intervention and treatment. Although we have clinically proven methods to improve health outcomes, national figures show that there are wide gaps between current recommendations for diabetes care and actual practice. There are many opportunities to improve care, reduce the burden of suffering and enhance the quality of life for people with this disease. The adoption of these essential care guidelines is one viable opportunity for your practice. Surveillance and ongoing quality improvement initiatives offer another promising strategy to make dramatic improvements in overall health outcomes.

These Essential Diabetes Mellitus Care Guidelines were developed through a collaborative effort of the Wisconsin Diabetes Advisory Group, a statewide group of over 40 key organizations involved in diabetes care. Based on the scientific literature, these guidelines represent a framework for diabetes management aimed at minimizing diabetic complications. The target audience for the guidelines includes primary

care providers, managed care organizations, clinics, and other health systems. They are designed to serve as a convenient tool to support and influence provider decisions in managing healthcare needs, as well as serve as reminders to provide consistent, comprehensive preventive care for people with diabetes.

The essential care guidelines are population-based, intended to be appropriate for *most* people with diabetes, but not intended to delineate all services that an *individual* patient may require. Clinical judgment may indicate the need for adjustment appropriate to the needs of each patient (e.g., age, overall medical condition, or level of glycemic control). Supporting documents provide a quick reference guide of pertinent information and references for each particular area of concern. Several flow charts and audit tools are also available to help facilitate thorough evaluations, as well as a means to document care and col-

lect data to assess health outcomes. The Advisory Group also designed Continuous Quality Improvement (CQI) Methods to help integrate these guidelines into clinical practice. A patient wallet card version of the guidelines is available to help promote personal responsibility and self-care management.

The Wisconsin Diabetes Control Program Advisory Group is encouraging providers and health care systems to adopt these guidelines into their practice. The guidelines will be periodically reviewed and revised to reflect advances in research and medical knowledge in diabetes care.

The entire guideline document is available through the Wisconsin Diabetes Control Program at 1414 E. Washington Avenue, Room 251, Madison WI 53703 (telephone 608-271-6871) or through their web site: <http://www.dhfs.state.wi.us/health/index.htm>.



FAMILY PRACTICE: Franciscan Skemp Healthcare-Mayo Health System, based in La Crosse, WI, has over 160 physicians/associate providers at 12 clinics and three hospitals in WI, MN, IA.

WAUKON, IA: BC/BE family physician with full range of family medicine, including OB, to join 3 BC family physicians and 2 certified PAs in brand new clinic facility completed 1997. The Waukon Clinic adjacent to 40 bed community hospital. Waukon, pop. 4,000, located in beautiful northeast Iowa, 17 miles from Upper Mississippi River and 50 miles from La Crosse.

PRAIRIE DU CHIEN, WI: Developing new practice and building new clinic facility in Prairie du Chien, WI, located on Upper Mississippi River, 60 miles south of La Crosse. Two BC/BE primary care physicians and associate provider needed to staff our newest medical facility in Prairie du Chien, community of 6,000 with service area of 22,000. Community hospital has 49 beds. OB is preferred, not required.

CONTACT: Tim Skinner at skinner-timothy@mayo.edu or Bonnie Guenther at guenther.bonnie@mayo.edu. Phone 800-269-1986 or fax CV to 608-791-9898.

Franciscan Skemp Healthcare-Mayo Health System
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Franciscan Skemp
Healthcare
MAYO HEALTH SYSTEM

Report compiled by Faye Gohre,
Health Systems Specialist, Wisconsin
Diabetes Control Program

Essential Diabetes Mellitus Care Guidelines – Wisconsin

*Care is a partnership between the patient, family and the diabetes team:
the primary care provider, diabetes educator, nurse, dietitian, pharmacist and other specialists.*

Abnormal physical or lab findings should result in appropriate interventions.

For particular details and references for each specific area, please refer to the companion supporting documents.*

Concerns	Care/ Test	Frequency
General Recommendations	<ul style="list-style-type: none"> Diabetes focused visit..... Review management plan, problems & goals..... 	<p><i>Type 1*</i>: every 3 months <i>Type 2*</i>: every 3 - 6 months * or > often based on control & complications Each focused visit; revise as needed</p>
Glycemic Control	<ul style="list-style-type: none"> Review meds & frequency of low blood sugar..... Self blood glucose monitoring, set & review goals..... HbA1C - [goal: < 7.0% or <= 1% above lab norms]..... [If HbA1c > 8.0%, action is recommended] Weight/BMI/Growth..... 	<p>Each focused visit 2 - 4 times/day or as recommended Every 3 - 6 months Each focused visit</p>
Kidney Function	<ul style="list-style-type: none"> Urinalysis..... Urine for microalbumin: [If higher than 30 :g/mg creatinine or > 30 mg/24 hours, initiate ACE inhibitor (unless contraindicated)] Creatinine clearance & protein..... 	<p>At diagnosis and yearly <i>Type 1</i>: Begin with puberty or after 5 yrs' duration, then yearly <i>Type 2</i>: At diagnosis, then yearly Yearly, after microalbuminuria > 300mg/24 hour</p>
Cardiovascular	<ul style="list-style-type: none"> Smoking..... Lipid profile..... [adult goals: Triglycerides < 200 mg/dL HDL > 35 mg/dL LDL < 100 mg/dL (optimal goal)] Blood pressure [adult goal: < 130/85] [children's goal: below 90% of ideal for age] Aspirin prophylaxis (unless contraindicated)..... Exercise/Diet/Weight Goals..... 	<p>Counsel to stop every visit <i>Children</i>: If > 2 years, after diagnosis & once glycemic control is established - repeat yearly if abnormal. Follow National Cholesterol Education Program (NCEP) guidelines. <i>Adults</i>: yearly. If abnormal, follow NCEP guidelines. Each focused visit Age > 40 years Each focused visit</p>
Eye Care	<ul style="list-style-type: none"> Dilated eye exam by ophthalmologist or optometrist 	<p><i>Type 1</i>: After 5 yrs' duration, then yearly <i>Type 2</i>: At diagnosis, then yearly</p>
Foot Care	<ul style="list-style-type: none"> Inspect feet, with shoes and socks off..... Comprehensive lower extremity sensory exam..... 	<p>Each focused visit: stress need for daily self-exam Yearly</p>
Pregnancy	<ul style="list-style-type: none"> Assess contraception/discuss family planning..... Preconception consult..... Management 	<p>At diagnosis & yearly during childbearing years 3 - 4 months prior to conception <i>Some medications (e.g., oral antidiabetic agents, ACE inhibitors, angiotensin II blockers, etc.) are contraindicated during pregnancy</i></p>
Self Management Training	<ul style="list-style-type: none"> By diabetes educator..... Curriculum to include the 15 key areas of the national standards for diabetes self-management education 	<p>At diagnosis, then every 6 - 12 months or more as indicated by the patient's status</p>
Nutrition Therapy	<ul style="list-style-type: none"> By a dietitian..... To include areas defined by the American Dietetic Association's Nutrition Practice Guidelines 	<p>At diagnosis; then <i>Type 1*</i>: if age <18 years, every 3 - 6 months or if age >18 years, every 6 -12 months <i>Type 2*</i>: every 6 - 12 months; * or > as indicated by the patient's status.</p>
Immunizations	<ul style="list-style-type: none"> Influenza vaccine..... Pneumococcal vaccine..... 	<p>Yearly for adults and children > 6 months Once for adults and children > 2 years</p>

* The entire guideline package, including supporting documents, references, quality improvement guidelines, and tools, is available at <http://www.dhfs.state.wi.us/health/index.htm> or through the Wisconsin Diabetes Control Program, 608-261-6781.

Frequently Asked Questions about the Essential Diabetes Mellitus Care Guidelines

Diane Elson, MD, Joseph Blustein, MD, and Timothy McNamara, DDS

Supporting evidence and the rationale for all areas of concern are delineated within the text of the supporting document and reference sections of the essential diabetes mellitus care guidelines.

Q: *Who developed these guidelines?*

A: They were developed through a collaborative effort of the Wisconsin Diabetes Advisory Group, a statewide group of over 40 key organizations involved in diabetes care. Countless other individuals were also involved in the review and revision of various drafts during development. The process was facilitated by the Wisconsin Diabetes Control Program.

Q: *How were the guidelines developed?*

A: The first meeting of the Diabetes Advisory Group was held in December 1996. At that time a decision to develop state guide-

lines as a way to improve diabetes care in Wisconsin was defined as a priority. National figures revealed that, in spite of the availability of already existing guidelines (American Diabetes Association), there are wide gaps between current recommendations for care and actual practice. Most people with diabetes do not receive recommended levels of preventive care. Research also shows that adoption of locally developed guidelines is a growing feature in many health care practices and has shown to offer a useful opportunity to improve care. The advisory group reviewed guideline models developed by several other states to determine their own approach with the intent to combine the best features of each into one document. The advisory group approached this challenge with enthusiasm and dedication, volunteered their time to assist in various workgroups, and developed several drafts. The advisory group encouraged members to share drafts within their respective organizations for critique and input. Opinions were sought from additional experts as well as groups who would be ultimately impacted by these guidelines. The advisory group was able to come to consensus over the final components of the guidelines, via spirited debate over the course of the following year, and voted to unanimously approve them at the January 1998 advisory group meeting. Many members have volunteered

their ongoing support to assist with actual implementation strategies to get the guidelines into practice throughout Wisconsin.

Q: *Do these guidelines imply the frequency of visits that must be made for all patients with diabetes or is it up to the organization or judgment of the provider? Is there any flexibility for patients who are in good glycemic control?*

A: The guidelines are intended to be just that - guidelines. They are based on available literature and good practice standards and are intended to insure that patients with diabetes receive appropriate care, to reduce both the need for emergency care and the risk of chronic complications of the disease. No practitioner is expected to maintain this level of care single-handedly; the establishment of a "diabetes team" comprised of the primary care provider, diabetes educators, dietitians, pharmacists, and other medical specialists can be extremely useful in providing care for the patient with diabetes. We recommend quarterly "dedicated" diabetes visits with the provider to assess the patient's glycemic control and for complication surveillance. Quarterly, or even more frequent visits should be maintained for those patients using insulin, for those whose control is less than optimal, and for those whose degree of progression of complications



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warrants more in-depth assessment and treatment. For those patients who have minimal medication requirements and who maintain excellent glycemic control ($\text{HbA1c} < 7.0\%$), visits can be reduced to every 4 to 6 months at the discretion of the patient's provider.

Q: *Does testing for urine microalbumin need to be performed if albumin has previously been found in the urine?*

A: Once urine albumin exceeds 300mg/24 hours, we recommend that a 24 hour urine collection specimen be obtained for determination of creatinine clearance and protein on a yearly basis. Lesser degrees of albuminuria should be confirmed, as certain medications, especially NSAIDs, and exercise can transiently worsen microalbuminuria. We do recommend yearly determinations of creatinine clearance and protein in patients with gross albuminuria, even if already treated with angiotensin converting enzyme inhibitors both to assess for stability or deterioration in renal function, and to determine if ACE inhibitor therapy is effective.

Q: *Has ACE inhibitor therapy been proven to be effective for patients with nephropathy and type 2 diabetes?*

A: The preponderance of evidence of effects of ACE inhibitors to renal function has been compiled for patients with nephropathy and type 1 diabetes. There are, however, a number of studies that indicate a beneficial effect of ACE inhibitors in treatment of nephropathy in patients with type 2 diabetes. We do not know whether ACE inhibitors prevent nephropathy in patients with type 2 diabetes, and one

could argue that control of hypertension with any antihypertensive agent would be of benefit, but the available evidence favors use of ACE inhibitor therapy in patients with nephropathy and type 2 diabetes. Both ACE inhibitors and Angiotensin II blocking agents are contraindicated in pregnancy.

Q: *Is there good evidence to support aspirin prophylaxis for women with diabetes?*

A: Aspirin therapy is beneficial for both men and women with diabetes for coronary artery disease prophylaxis. Women with diabetes have an incidence of coronary artery disease approximately equal to that of men in the general population. Women with coronary artery disease tend to be diagnosed later, and have higher morbidity associated with their disease than do men. Incidentally, aspirin, when used in prophylactic doses (in both men and women), does not increase the risk of retinal hemorrhage. As coronary artery disease is the leading cause of death in patients with type 2 diabetes, and is the second most frequent cause of death in patients with type 1 diabetes, we recommend aspirin prophylaxis for all patients with diabetes over the age of 40 years, unless otherwise contraindicated. For patients with significant risk factors for coronary disease (nephropathy, dyslipidemia, family history of CAD, smoking, and longstanding diabetes), we recommend initiating aspirin therapy at age 30 years.

Q: *Is annual lipid testing necessary if the patient's initial profile has ideal levels?*

A: Determination of lipid levels depends on the patient's age, initial values, and glycemic control. We recommend following the

1993 National Cholesterol Education Program guidelines. Children over the age of 2 years should be tested after the diagnosis of diabetes and once reasonable glycemic control has been established. If values are acceptable, children should be retested at least every 5 years. If abnormal, testing should be done annually. As lipid levels can be affected by aging, glycemic control, weight change, and medications, we recommend determination of lipid levels annually for adults with diabetes.

Q: *Why is the LDL cholesterol goal so low (100 mg/dL)? How can we help patients achieve this level?*

A: Several recent studies, including the 4S Trial, the West of Scotland Study, and the CARE Trial have demonstrated the beneficial effects of LDL cholesterol reduction on morbidity and mortality from coronary artery disease. LDL cholesterol reduction is particularly helpful for patients with diabetes. Coronary artery disease is the leading cause of death in patients with type 2 diabetes and is second only to renal disease as the cause of death in patients with type 1 diabetes. With advances in renal transplantation, coronary artery disease may supplant end stage renal disease as the leading cause of death in patients with type 1 diabetes. Due to the high risk for coronary heart disease resulting from type 2 diabetes, the National Cholesterol Education Program (NCEP) indicates that aggressive lowering of LDL cholesterol levels, similar to that recommended for established coronary heart disease can be applied to diabetic patients. While NCEP does not specifically address the issues of LDL cholesterol reduction in patients with type 1 diabetes, given the high incidence of coronary



artery disease in patients with type 1 diabetes, we recommend attempting to achieve comparable "ideal" levels for patients with type 1 diabetes as those for type 2 diabetes. Strategies to reduce LDL cholesterol include dietary modification, exercise, weight loss, and lipid lowering medications. Niacin is contraindicated in patients with type 2 diabetes. Bile acid sequestrants can worsen hypertriglyceridemia. Many patients will require initiation of drug therapy, usually with HMG CoA reductase inhibitors to achieve recommended levels of LDL cholesterol. A team approach, utilizing a diabetes educator, dietitian, and others is beneficial to provide the ongoing training, motivation, support and follow-up necessary to help patients achieve and maintain the lifestyle changes needed for them to control their disease.

Q: Is monitoring fructosamine levels also acceptable to assess long term glycemic control?

A: Fructosamine, or glycated serum proteins, reflects changes in glycemic control over 1 or 2 week periods. Fructosamine may be useful to detect more short term changes in glycemic control and to assess control where HbA1c values may not be accurate (hemoglobinopathies). Measurement of fructosamine, however, has not been demonstrated to correlate with the risk of development of complications, as has HbA1c, and should not be considered equivalent to measurement of HbA1c.

Q: Is nutrition therapy necessary every 6-12 months for patients who are meeting glycemic and management goals?

A: Nutrition therapy is a cornerstone of management for diabetes. It was a critical component

of the DCCT model for tight control in the achievement of improved HbA1c levels. Early intervention and ongoing nutrition therapy at the recommended levels are essential to help patients achieve glycemic control and reduce the risk of cardiovascular disease. Regular visits to dietitians provides the message that nutrition therapy is a necessary component of diabetes control. Ongoing visits for updates, support, education, and follow-up are critical to help patients attain and maintain the necessary lifestyle changes to control their disease. If providers choose to decrease visits for patients with no problems, who are *truly* stable and achieving *all* metabolic goals, they should refer the patient back to the dietitian at the first sign of *any* deterioration in control. The old model, waiting to refer to the dietitian *after* the patient is *out of control*, is not satisfactory.

Q: Are annual dilated eye exams necessary for people with diabetes or is a more infrequent schedule appropriate?

A: Studies support the yearly frequency for screening eye exams for people with diabetes. This frequency is key in reducing preventable blindness in the diabetic population. In addition to screening, there must also be a system in place for treating those who screen positive.

Q: Are non-dilated fundus photo exams sufficient to screen for retinopathy?

A: No. Fundus photos of any type are not a substitute for a dilated fundus exam. A dilated fundus exam implies a comprehensive eye exam which is more than just a good look at the retina. For areas with limited access to qualified experts, fundus pho-

tos are better than doing nothing to screen for retinopathy, however, this should not be the case in Wisconsin. The care to people with diabetes in Wisconsin should not be compromised.

Non-dilated fundus photos is not a new technology. This type of photography is not as reliable as the seven standard field photography for detecting retinopathy. Ophthalmic fundus photography is not a substitute for a dilated fundus exam.

Q: Are people with diabetes more susceptible to the development of severe periodontitis?

A: Collectively, the scientific evidence supports a relationship between the two diseases, especially in patients with poorly controlled diabetes and hyperglycemia. Diabetics have increased susceptibility to oral infections, including periodontitis. Periodontitis occurs with greater frequency and increased severity when other systemic complications of diabetes are more advanced. This increased susceptibility does not correlate with dental plaque or calculus levels. Among insulin dependent diabetics, the risk for periodontitis positively correlates with duration of diabetes. Non-insulin dependent diabetics are 2.8 times more likely to have periodontal attachment loss and 3.4 times more likely to have periodontal bone loss than non-diabetics. In 1993, periodontal disease was recognized by *Diabetes Care* as the sixth complication of diabetes.

Q: Can elimination of periodontal infection improve glycemic control?

A: The presence of infections, including advanced periodontal



disease, can increase insulin resistance and contribute to a worsening of diabetic control. Oral infections have been documented to be on occasion life-threatening to diabetics. Research has shown that insulin requirements are reduced in some insulin dependent subjects following periodontal therapy. In a recent prospective study of 88 NIDDM subjects aged 18-67 years, severe periodontitis at baseline was associated with poor glycemic control,

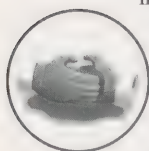
defined as HbA1c of 9% or more, at follow-up. In this same population, elimination of periodontal infection and reduction of periodontal inflammation resulted in a significant reduction in the concentration of glycated hemoglobin (HbA1c). We generally recommend that periodontal examination is indicated following diagnosis for diabetes, and subsequent treatment for periodontal disease to improve control.

Q: How do I obtain the supporting documents and additional copies of these guidelines?

A: They are available via the Internet at <http://www.dhfs.state.wi.us/health/index.htm>. You can also write to the Wisconsin Diabetes Control Program at 1414 E. Washington Avenue, Room 251, Madison, WI 53703 or call 608-261-6871.

Acknowledgment

The authors of these guidelines, the Wisconsin Diabetes Advisory Group and other dedicated individuals, represent key organizations committed to improving diabetes care in Wisconsin. Countless other individuals were also involved in the review and revision of various drafts during development. The Wisconsin Diabetes Control Program wishes to thank all of them for their collaboration, expertise, and perseverance regarding this statewide project. We are also deeply grateful to the Diabetes Control Programs of California, Minnesota, Oregon, Washington, and Texas who so graciously shared the lessons learned and final products of



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Guest Editorial

Diabetes Guidelines: A Message to the Physician

by Robert B. Johnson, MD, River Falls

The Wisconsin Diabetes Advisory Group presents *Essential Diabetes Mellitus Care Guidelines*, this month. These guidelines have a broad base of support from organizations representing patients, health care providers, patients and the public media. These guidelines are patterned after current recommendations for diabetic care which promote aggressive management of glycemic control, hypertension and hyperlipidemia, and promote monitoring and treatment for diabetic complications in the eye, foot and kidney. Since these guidelines and diabetic care have been and will continue to be in the news, I present to you my read on them.

Complications may Decrease, but Challenges Persist

As is so often true, the news is both good and bad. Intensive management of diabetes can dramatically decrease complications of diabetes, but these dramatic results were obtained in a heavily funded, controlled setting, involving highly-motivated patients and numerous health professional hours. The good news of the benefits of intensive management of diabetes have

and are being heard, but unfortunately patients, public and health professionals have been slow to attempt to activate the message. It remains to be seen if we can achieve this degree of care for sustained periods of time in the real world of medicine.

The standards proposed by the Wisconsin Advisory Group are high and will not be achieved with standard diabetic care, but any improvement in glycemic control can slow the progression and development of diabetic complications lest you assume a nihilistic response toward the guidelines. New oral drugs are available to improve control of diabetes, but these drugs have side effects and contraindications and lack efficacy and potency. New insulins are available to improve control of diabetes, but insulin therapy requires monitoring and frequent adjustment. Monitoring and adjusting therapy to improve control of diabetes is facilitated by a diabetic team, but most primary care physicians in Wisconsin do not have an organized team. Hopefully insurance and Medicare funding for dietary and diabetic education will make it possible to organize diabetic teams throughout Wisconsin. Monitoring and adjusting therapy to improve control of diabetes is impossible if patients cannot afford the medications and supplies will become universally available.

Applying The Guidelines Can Make All the Difference

There is a message for primary care physicians in the news of these guidelines. We need to take the lead and believe that we can make a difference. What we are doing with standard care is not working. We should seek education that will allow us to educate and assist patients in monitoring and adjusting therapy. We should identify a diabetes team that will help us to educate, motivate and treat patients with diabetes. We should seek and expect assistance in our efforts to organize these teams. I urge you to read and consider the guidelines and their supporting documents. Use them to monitor and evaluate your practice of diabetes care and you will find areas that need improvement. Use them to develop a plan of care that will assist you to better "Walk the Talk" of what you believe is good diabetes care. Use them to motivate you to do your part to see that the message of these guidelines become a part of a statewide effort to improve care of patients with diabetes in Wisconsin.



Doctor Johnson is a family physician with River Falls Medical Clinic, River Falls, and a member of the Wisconsin Academy of Family Physicians.



Russell H.
Tomar, MD



Francois
Sainfort, PhD

Guest Editorial

Some Thoughts on the Current Status of Treatment for Diabetes Mellitus

by Russell H. Tomar, MD, and Francois Sainfort, PhD

Diabetes mellitus (DM) and its associated complications are major health problems affecting people of all ages. Approximately 16 million people in the US have this disease with annual direct health-care costs estimated to be \$70 billion. One of every seven US health care dollars is spent on diabetes mellitus. Ninety percent of patients with diabetes mellitus have type 2 or non-insulin dependent diabetes mellitus and this type is thought to account for about 70% of the direct and indirect lifetime costs associated with diabetes mellitus.^{1,2}



Impact on Public Health Resources

Recently, the General Accounting Office published a monogram with the title, "Medicare: Most Beneficiaries with Diabetes Do

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Not Receive Recommended Monitoring Services."³ The General Accounting Office estimates that three to five million people on Medicare suffer with diabetes. Thus, 10-15% of the medicare population "may account for as much as 25% of all Medicare costs." Furthermore, "complications of the disease clearly can diminish quality of life. Diabetes is a leading cause of blindness, end-stage renal disease, and lower extremity amputations; and people with diabetes have rates of coronary heart disease and stroke that are two to five times those of non-diabetics."

Diagnosis and Management

There is increasing interest in improving the diagnosis and management of persons with diabetes mellitus, upgrading the quality of life and decreasing healthcare costs. In a landmark study, the Diabetes Control and Complications Research Task Force (DCCT), treating patients with type 1 diabetes mellitus, demonstrated that improved control of blood sugar, as determined by measuring Hemoglobin A1c (HbA_{1c}), delays the onset of microvascular complications.⁴ This group's therapeutic program included more frequent testing for glucose, more frequent administration of insulin, and more directed educational programs for patients and their families. The DCCT selected subjects ages 13-39 years with no diabetic complications or minimal retinopathy.

Subjects were instructed to test their blood four or more times daily and adjust their insulin doses accordingly. Some patients received an implantable semi-automated insulin pump while others injected themselves multiple times each day. Compared to a control group treated conventionally, the onsets of retinopathy, neuropathy, and nephropathy in the intensively treated group were delayed by 50-75%.⁴

The Government Accounting Office also noticed that many programs including those paid for through the Health Care Finance Administration have begun to test preventive care initiatives but that the agency does not have adequate tools to evaluate effectiveness. "To the extent that these initiatives prove cost-effective, they may help promote better management of diabetes care."

While the DCCT results for type 1 diabetes mellitus are clearcut, they do leave some issues unresolved. The DCCT therapeutic strategy was applied to only a subset of patients with type 1 diabetes mellitus, i.e., ages 13-39 with no demonstrable or lesser microvascular complications. The study was understandably stopped for ethical reasons when it became clear that intensive therapy was superior to conventional treatment. Thus, we do not know if intensive therapy would also have impacted positively on macrovascular complications such as coronary artery disease and stroke. Investigations similar to that done

by the DCCT are ongoing in type 2 diabetes mellitus.^{5,6,7} These are encouraging but incomplete. Finally, researchers are only now assembling and analyzing data to estimate long term effects on complications, health-related quality of life, and costs.⁸⁻¹²

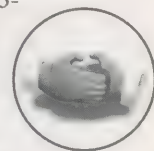
Going Forward

We developed a simulation model of type 1 diabetes mellitus as an aid to health planners, providers, and policy makers.^{8,9} Our model is based on Wisconsin data and the only "Markov" population-based simulation program available. This model of type 1 diabetes mellitus suggests that intensive therapy will be "cost-effective" and of great benefit to the patient if the gains realized by the DCCT are transferable to the public at large.

The ultimate goals of prevention and cure are dependent on new biomedical and technical developments. It now appears, however, that we can make significant improvements in the lives of persons with diabetes mellitus through the implementation of comprehensive programs to ensure the quality of all components and the continuing, life-long adherence to intensive therapy by the patient.

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Guest Editorial

The Role of the Diabetes Educator

by Mary Jo Blatz, RN, BSN, CDE

Diabetes is estimated to affect as many as 16 million people in the US, and is expected to increase significantly in the next 15 years. In Wisconsin, diabetes affects over 315,000 people, approximately one out of every 18 residents. Diabetes has a tremendous economic impact on health care, with one of every seven health care dollars being spent on diabetes. The impact of diabetes on healthcare, and on the patient's quality of life is staggering.



Diabetes is associated with increased morbidity and mortality, causing end stage renal disease, blindness, cardiovascular disease, and lower extremity amputations. As a result of the Diabetes Control and Complications Trial, we know the effectiveness of intensive therapy. The DCCT has shown a 50% or more reduction in delay in microvascular complications in patients with Type 1 diabetes who are maintaining strict glycemic control.

Health care is changing rapidly. We're seeing a shift from treating morbid conditions to prevention and detection of chronic disease. Interventions focused on prevention of disease have had a significant economic and quality-of-life impact on short and long-term complications of diabetes. The days when a patient could be told that he has "borderline diabetes" are gone. Patients are bombarded

with information in the media which impacts their care. They are aware of treatment options, and expect those options to be made available to them. However, because diabetes is largely a self-management disease, prescribing the correct dose of a medication is not enough. The patient needs to learn about glucose testing, meal planning, exercise, sick days, foot care, and the prevention of both short and long term complications of diabetes. It is often difficult for a physician with limited time to meet the educational and assessment needs of a patient with diabetes.

A solution to this problem can be the team of the physician and the diabetes educator. While representing a variety of backgrounds, including pharmacist, dietitian, social worker, nurse, and physician, diabetes educators are skilled in assessing the patient's attitude about diabetes, cultural beliefs, barriers to learning, and personal issues that affect blood glucose control.

An integral member of the health care team, the diabetes educator will provide individual instruction in a variety of ways:

1. Assessment and collaboration on an individualized plan of care.
2. Medical nutrition therapy (usually provided by a dietitian) including evaluation and development of a specific meal plan.
3. Explanation of the interaction between food, exercise, and medication.

4. Self glucose monitoring and urine testing for ketones, including rationale for testing and interpretation of results.
5. Insulin injection instruction.
6. Medication instruction.
7. Treatment and prevention of hypoglycemia.
8. Foot care, including daily assessment and appropriate action to take in case of a problem.
9. Discussion of long-term complications, including screening for early intervention.
10. General topics including explanation of glycosylated hemoglobin, interactions of medications, and the importance of blood pressure control.
11. How to avoid emergency room visits for acute complications of diabetes.

The American Diabetes Association has identified standards of medical care for patients with diabetes, which serve as a blueprint for care. However, these guidelines are under-utilized. More than 50% of people with diabetes receive little or no self-management education. By including a diabetes educator as an integral member of the diabetes health care team, the educational needs of the diabetes patient can be met. Comprehensive self-management by the patient, along with the collaborative efforts of the health care team, can have tremendous impact on diabetes.

Team up with a diabetes educator today, for the health of our diabetes patients tomorrow.

Mary Jo Blatz, RN, BSN, CDE, is a diabetes educator at St. Michael Hospital in Milwaukee, Wisconsin.



Focus on Diabetes

The New Classification and Diagnostic Criteria for Diabetes Mellitus: Rationale and Implications

by Gabriele E. Sonnenberg, MD

The previous classification system and diagnostic criteria for diabetes mellitus were developed by the National Diabetes Data Group (NDDG) in 1979.¹ An international Expert Committee was assembled under the sponsorship of the American Diabetes Association (ADA) in May 1995 to review whether changes to the classification and diagnosing system should be made based on scientific data accumulated over almost two decades. The committee decided that revisions were necessary in both areas, the classification system and the diagnostic criteria for diabetes. New guidelines were developed and first publicized at the National ADA Meeting in June, 1997.² The Expert Committee report is also included in the Clinical Practice Recommendations 1998.³ In addition to the ADA, the Expert Committee's recommendations have been accepted and are supported by the Division of Diabetes Translation of the Centers for Disease Control and Prevention and by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) of the National Institutes of Health.

Dr. Sonnenberg is Associate Professor of Medicine, Director, Diabetes Care Center, Division of Endocrinology, Metabolism, and Clinical Nutrition, at the Medical College of Wisconsin, and President, American Diabetes Association, Wisconsin Area.

The new recommendations include several important changes: a classification system of diabetes which is based on etiologic rather than treatment factors; revision of the diagnostic criteria with recommended priority of diagnostic tests; specification of who is at increased risk and should be tested at which intervals; and more selective screening criteria during pregnancy.

The New Classification System

The Expert Committee recommended the elimination of the previous categories of "insulin-dependent diabetes mellitus" (IDDM) and "non-insulin-dependent diabetes mellitus" (NIDDM), because they are based on treatment (i.e., use of insulin) which can vary considerably and does not necessarily specify the underlying disease mechanism. The new classification system reflects etiology and/or pathogenesis of the different types of diabetes. Significant advances in understanding the molecular pathophysiology of diabetes have guided the Expert Committee in their revision of the classification. The new system, however, is still not complete, particularly with regard to Type 2 diabetes, since in the majority of patients, the etiologic processes are not defined yet. The new classification divides diabetes into four classes (Table 1).

New Diagnostic Criteria

According to the new diagnostic

criteria, there are three ways to diagnose diabetes, and each must be confirmed on a subsequent day by any of the three methods (Table 2).

"Fasting" is defined as no caloric intake for at least eight hours. In diagnosing diabetes by the ≥ 200 mg/dl, "casual" refers to any time of day, without regard to time since the last food intake, and "symptoms" are the classic ones of polyuria, polydipsia, and unexplained weight loss.

A fasting plasma glucose (FPG) concentration of 109 mg/dl has been chosen as the upper limit of the normal range, and a fasting glucose of ≥ 126 mg/dl is now indicating the diabetic range. Impaired glucose homeostasis, including impaired glucose tolerance (IGT) and impaired fasting glucose (IFG), refers to a metabolic stage intermediate between normal glucose homeostasis and diabetes. The term IFG describes the fasting plasma glucose range between ≥ 110 and < 126 mg/dl. In the absence of pregnancy, IFG and IGT are not clinical entities on their own but represent risk factors for developing diabetes and cardiovascular disease.⁴

Priority of Diagnostic Tests

The FPG is the preferred test for clinical use. It should also be used to confirm the diagnosis if one of the other two tests, the casual plasma glucose or the OGTT, has indicated abnormal results. In the interest of standardization, the

Table 1. Etiologic Classification of Diabetes Mellitus

- I. Type 1 diabetes (β -cell destruction, usually leading to absolute insulin deficiency); majority is ascribed to an autoimmune process; some cases with no evidence of autoimmunity are classified as idiopathic;
- II. Type 2 diabetes (may range from predominantly insulin resistance with relative insulin deficiency to a predominantly secretory defect with insulin resistance);
- III. Other Specific Types: Originate from genetic defects of β -cell function, genetic defects of insulin action, or diseases of the exocrine pancreas; are associated with endocrinopathies; are induced by drugs, other chemicals, or viral infections; or represent uncommon forms of immune-mediated diabetes and other genetic syndromes sometimes associated with diabetes;
- IV. Gestational diabetes mellitus (GDM).

fasting plasma glucose is now recommended for estimates of diabetes prevalence and incidence in any population screening and epidemiological studies.

Compared to FPG, the oGTT is less convenient to patients, associated with higher costs, more time-consuming, and less reproducible. The oGTT is therefore not recommended for clinical diagnosis. During pregnancy, however, screening with 50 g glucose is recommended in women at increased risk and should be followed by the diagnostic 3-hour glucose test with 100 g glucose if the 1-hour screening plasma glucose is > 140 mg/dl.

Glycosylated hemoglobin or hemoglobin a_{1c} measurements represent valuable tools for monitoring treatment outcomes in diabetic patients, but they are currently not recommended for diagnosing diabetes. The concern is that many different measurement methods of HbA_{1c} exist, and standardization of HbA_{1c} measurements has not been achieved, which makes the assignment of an appropriate cutpoint difficult.

Rationale

In addition to fasting plasma glucose as the preferred diagnostic test, the decrease of the cutpoint for FPG from ≥ 140 to ≥ 126 mg/dl is of greatest importance. Under the old criteria, 10-20% of patients had already developed retinopathy and nephropathy by the time their fasting plasma glucose reached > 140 mg/dl.^{5,6} The previously used cutpoint of ≥ 140 mg/dl was found to represent a greater degree of hyperglycemia than the cutpoint of 2-h postload (2-h PG) ≥ 200 mg/dl (127). The Expert Committee decided to avoid this discrepancy by lowering the cutpoint for fasting plasma glucose.

The decision of where to exactly set the lower cutpoint for FPG was guided by studies evaluating the prevalence of micro- and macrovascular disease in relationship to glycemia levels. In population studies of the Pima Indians in the US,⁷ among Egyptians,⁸ and in the Third National Health and Nutrition Examination Survey (NHANES III) in the US, the prevalence of retinopathy rose significantly when fasting glucose

levels ranged between 120 and 130 mg/dl. With regard to macrovascular disease, the incidence of fatal coronary heart disease were markedly increased at FPG ≥ 125 mg/dl in the Paris Prospective Study;⁹ similarly in the Baltimore Longitudinal Study of Aging, the incidence rates of coronary artery disease and the all-cause mortality rates were markedly and almost linearly increased above FPG in the range of 110-120 mg/dl. The summary estimate from these population studies was a cutpoint of 126 mg/dl for FPG.

Impact and Anticipated Outcome

The consistent universal use of the FPG test for diagnosing diabetes will identify two million people with diabetes mellitus.¹⁰ Most of these people have diabetes but have not been diagnosed with the disease. Within the estimated 15 million people with diabetes in the US, they will move from the category of being "undiagnosed" to "diagnosed." Thus the number of people with "diagnosed" diabetes in the United States will increase from 8 to 10 million.

Using the new diagnostic criteria will identify people with "early" type 2 diabetes before microvascular complications occur. This provides the opportunity for early treatment of the disease. The initial treatment should consist of patient education and individualized lifestyle modifications, including exercise and meal planning, and, in obese subjects weight loss and subsequent maintenance of a normal body weight. If these lifestyle changes are not sufficient to achieve target glycemic goals, pharmacologic treatment should be initiated, chosen from the five different classes of antihyperglycemic medications now available. Achieving good glycemic control early in the disease will not only prevent the development of micro- and

Table 2. Diagnosing Diabetes

STAGE	TEST		
	Fasting Plasma Glucose (FPG) (Preferred)*	Casual Plasma Glucose	Oral Glucose Tolerance Test (OGTT)*
Diabetes	FPG \geq 126 mg/dl (7.0 mmol/l)**	Casual plasma glucose \geq 200 mg/dl (11.1 mmol/l) plus symptoms***	Two-hour plasma glucose (2hPG) \geq 200 mg/dl****
Impaired Glucose Homeostasis	Impaired Fasting Glucose (IFG) = FPG \geq 110 and $<$ 126 mg/dl		Impaired Glucose Tolerance (IGT) = 2hPG \geq 140 and $<$ 200 mg/dl
Normal	FPG $<$ 110 mg/dl		2hPG $<$ 140 mg/dl

macrovascular complications but may also preserve the function of insulin-secreting pancreatic-cells, which could delay the need for more complicated and expensive treatment regimens.¹⁰

Testing for Diabetes in Asymptomatic, Undiagnosed Individuals

According to the Expert Committee Report, testing for type 2 diabetes should be considered in all asymptomatic adults age 45 and over; if normal, testing should be repeated at three-year intervals. Testing should be considered at a younger age or be done more often in people who have particular risk factors for the disease, including individuals who:

- are obese (\geq 120% desirable body weight or DMI \geq 27 kg/m²)
- have a first-degree relative with diabetes
- are members of a high-risk ethnic population (e.g., African-American, Hispanic-American, Native American, Asian-American, Pacific Islander)
- have delivered a baby weighing $>$ 9-lbs. or have been diagnosed with gestational diabetes
- are hypertensive (\geq 140/90 mm Hg)

- have an HDL cholesterol level \leq 35 mg/dl and/or a triglyceride level \geq 250 mg/dl
- on previous testing, had IGT or IFG.

Testing for gestational diabetes mellitus (GDM) has also been modified by the new guidelines, recognizing variability in risk to develop GDM. Instead of universal screening of all pregnant women in their third trimester, the committee now recommends that women at low risk need not be screened. This includes women who satisfy all of the following criteria: less than 25 years of age, normal body weight, have no first-degree relative with diabetes, and are not members of an ethnic/racial group with a high prevalence of diabetes, e.g., African-American, Hispanic-American, Native American, Asian-American, Pacific Islander.

Testing presumably healthy people for type 1 diabetes using immune markers that indicate potential for or early onset of the disease is not recommended outside the ongoing clinical trials. Cutoff values for some of the immune markers have not been defined for clinical use, and more importantly effective modes of preventing or delaying the disease are currently not established.

No Changes in Treatment Goals

The new guidelines of the Expert Committee are directed toward diagnosing diabetes. No changes have been made to the goals for glycemic control in patients with diabetes which are provided in the "Standards of Medical Care for Patients with Diabetes Mellitus" of the American Diabetes Association.¹¹ In general, the goals for capillary blood glucose (patients' self-monitored readings) in the fasting state and before meals are $<$ 120 mg/dl and at bedtime $<$ 140 mg/dl, and the goal for hemoglobin A_{1c} is a value below 7%, considering a normal range of 4.0- 6.0%. During pregnancy the glycemic goals are set at lower ranges. Treatment goals may be modified in patients with comorbid diseases, the very young and older adults, and others with unusual conditions and circumstances.

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Continued on p. 38

The Prevalence of Diagnosed Diabetes Among Wisconsin Adults

by Eleanor Cautley and Patricia Nametz

About 4% of Wisconsin adults (ages 18 and older) have ever been diagnosed with diabetes, according to results of a statewide telephone survey. This brief report summarizes the survey findings, which apply only to persons living in households. (The findings do not represent nursing home residents and other institutionalized populations; nor do the results reflect persons with undiagnosed diabetes.)

Most Wisconsin adults who have been diagnosed with diabetes are age 45 and older. About 80% of diagnosed diabetics are in this age group (an estimated 125,000 persons in the household population), with another 20% (32,000) between the ages of 18 and 44 (Figure 1).

The rest of this report examines diabetes-related findings among adults ages 45 and older. The overall prevalence of diagnosed diabetes among the 45 and older population is 8%. Six percent of Wisconsin adults ages 45-64 have ever been diagnosed with diabetes (an estimated 56,000 people), compared with 11% of adults age 65 and older (an estimated 68,000 people).

Eleanor Cautley is a research analyst in the Center for Health Statistics, Division of Health, Wisconsin Department of Health and Family Services. Patricia Nametz is an editor and public health educator in the Center.

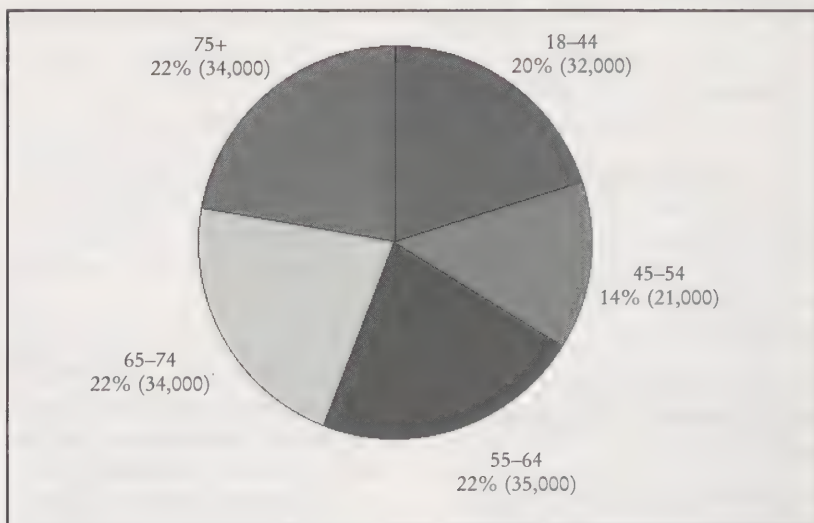


Figure 1. Age Distribution of Adults Ever Diagnosed with Diabetes, Wisconsin 1996

Diabetics consistently report that their overall health is fair or poor in much larger proportions than do non-diabetics. While 17% of non-diabetics age 45 and older report their health as fair or poor, 46% of diabetics do so. It is noteworthy that the proportions with fair or poor health are virtually the same among diabetics ages 45-64 and those age 65 and older. This runs counter to the usual pattern (the proportion in fair or poor health is usually much larger among people 65 and older than among younger groups). Over years of research, this health status measure (the percent in fair or poor health) has been found to be related to future health outcomes, including illness and hospitalization, as

well as to health care expenditures.

Diabetes is associated with lower income levels to a certain degree. The prevalence of diagnosed diabetes was 14% among adults living below the poverty level, while it was 6% among those living at 200% of poverty or above. This relationship between poverty and diabetes was stronger at ages 45-64 than among adults 65 and older.

Diabetics aged 45 and older rely more on Medical Assistance (MA) coverage for health care costs than do non-diabetics. As indicated in Figure 3, 21% of people with MA or MA plus Medicare coverage are diagnosed diabetics. This proportion is much larger than the proportion

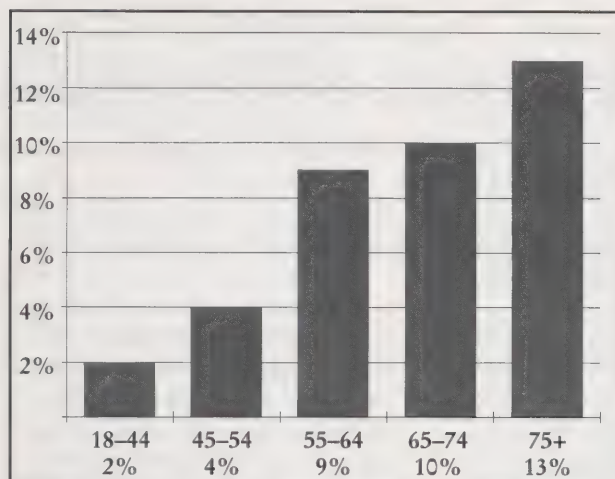


Figure 2. Prevalance of Diagnosed Diabetes by Age Group, Wisconsin 1996

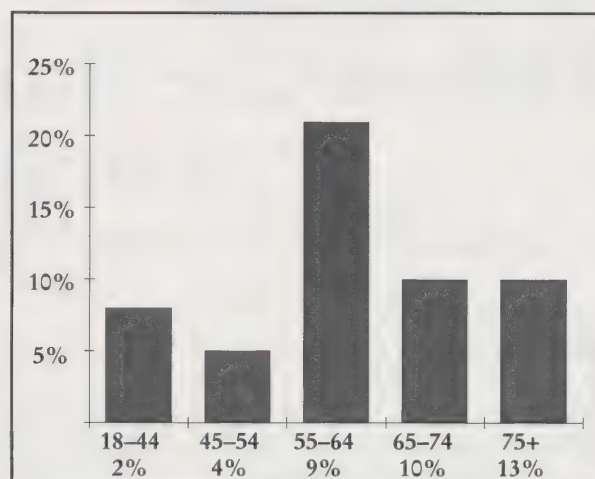


Figure 3. Prevalance of Diagnosed Diabetes by Among Adults Aged 45 and Older, by Insurance Status, Wisconsin 1996

of diagnosed diabetics within any other type of health insurance.

This article is based on results from the Wisconsin Family Health Survey, a random-sample telephone survey conducted throughout 1996 by the Center

for Health Statistics. In each sampled household, the adult who knew the most about the health of all household members answered all the survey questions. The sample included 100 diagnosed diabetics ages 45-64,

151 diabetics ages 65 and older, plus 2,596 other adults age 45 and older. Confidence intervals for the results reported in this article are available from the first author.

exhibit A:

Adhesive bandage, which plaintiff alleges defendant pulled rapidly from skin, violently tearing three hairs from plaintiff's arm, which resulted in severe shock, trauma, disfigurement, chronic debilitating pain and permanent psychological damage.



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Diabetes Care Management: a Managed Care Approach

by Lorena Chicoye, MD; Constance R. Roethel, RN, BSN, CDE; Michael H. Hatch, RPh; William Wesolowski, MS

A Diabetes Care Management program was developed by PrimeCare, a network model HMO, to improve quality of life health outcomes and reduce the costs of medical care for its members with diabetes. The HMO used a systems-based approach to communicate information about appropriate self-management and standards of care to members and physicians. The focus of the program was to educate and encourage patients to self-manage their illness, and to partner with physicians, other health care providers and community organizations to achieve improved quality of life, clinical and financial results. Clinical process indicators were used to measure results of interventions. Significant increases in the percentage of participants receiving glycosylated hemoglobin (HbA1c) tests, retinal eye exams and lipid panel tests were achieved.

Diabetes is a chronic illness that affects sixteen million Americans. It is a leading cause of death, disability and hospitalization. Diabetes imposes a major burden on the health care system, both in terms of cost for acute care and its related complications. An esti-

mated 3.1 % of the total US population is diagnosed with diabetes, yet it accounts for nearly 12% of total health-care expenditures. In 1992, the total direct and indirect cost of diabetes was \$92 billion.¹ The number of Wisconsin residents¹ who have diabetes is estimated to be 315,400, or 6.2% of the total state population. In 1994, charges for hospitalizations for Wisconsin residents with any mention of diabetes as a diagnosis totaled more than \$544 million, not including physician fees.²

The results of the Diabetes Control and Complications Trial (DCCT) demonstrated that intensive therapy effectively delays the onset and slows the progression of diabetes related complications. The goals of intensive therapy in the DCCT included a preprandial blood glucose concentration of between 70 and 120 mg/dl.³ Maintaining glycemic control is a labor intensive, multifactorial process. Diabetes management requires a multidisciplinary team approach which should include patients, physicians, and diabetes educators.⁴ HMOs and other managed care organizations can play a significant role in helping their members achieve diabetes control and in controlling excess expenditures related to complications.⁵ With this goal in mind, PrimeCare implemented a Diabetes Care Management program in June of 1996.

Diabetes Disease Management

The impact on quality of life along with the economic impact on society makes diabetes a logical choice

for a disease management program, incorporating the coordinated care philosophy of managed care organizations. Disease management is a coordinated, proactive, disease-specific approach to patient care that seeks to produce the best clinical outcomes in the most cost-effective manner. A system of care for a specific disease is developed using practice guidelines, standards of care, and patient education models.⁶ This approach allows outcomes tracking of continuous quality improvement efforts to simultaneously upgrade the quality of patient care and reduce costs.

PrimeCare Health Plan, Inc., a United HealthCare company, is the largest managed care health plan in Wisconsin, with more than 235,000 members. The network-based plan, located in Milwaukee, contracts with 20 hospitals, 50 plus clinics and more than 2,900 physicians throughout its ten-county, southeastern Wisconsin service area. As of December 31, 1997, PrimeCare is one of two health plans in Wisconsin to receive three-year, Full Accreditation from the National Committee of Quality Assurance, a nationally-recognized, independent, non-profit organization that measures and reports the quality of care provided by managed care organizations.

Methods

A review of PrimeCare data from July 1, 1994 through June 30th, 1995 indicated three areas of opportunity: HbA1c testing, lipid panel testing and retinal eye

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exams. In 1995 an internal team was developed. The clinical group comprised of the medical director, care manager nurses, a pharmacist, a nurse certified diabetes educator, and a dietitian certified diabetes educator guided the clinical development of the program. An information systems group designed the data base and a representative from the claims department assisted in tracking and identifying utilization claims and codes. The communications and marketing group helped design and evaluate intervention letters and ancillary communications that would go out to members and physicians. Health Promotions arranged and scheduled member education programs. Case Management was included in the identification and management of members stratified as high risk. A statistician joined the team for program evaluation.

Network resources including primary care physicians, endocrinologists, ophthalmologists, podiatrists and diabetes educators were identified through provider surveys to evaluate the types of services and education programs available in PrimeCare's membership area. Focus groups of primary care physicians, endocrinologists and diabetes educators were held to identify appropriate interventions and treatment guidelines. Other organizations with whom PrimeCare formed informal partnerships included the American Diabetes Association who provided support through the Provider Recognition Program, the Wisconsin Diabetes Control Program of the Bureau of Public Health who shared demographic and research information, and pharmaceutical companies who provided support for educational programs.

Using a combination of ICD-9 codes, CPT-4 codes, pharmacy claims, and care management cri-

teria, PrimeCare was able to identify 5100 members with diabetes in its commercial membership. Criteria were:

- Continuously enrolled members from June 1, 1995 through May 31, 1996 for baseline measure;
- Continuously enrolled members from June 1, 1996 through May 31, 1997 for outcomes measure;
- Members in baseline and outcomes measures may differ due to changing eligibility and enrollment.

The evaluation objectives of the diabetes care management program were to assess member compliance with clinical process indicators in controlling diabetes relative to 1) prior compliance rates of these same members and 2) local and regional norms and ADA standards.

Interventions included an initial mailing to members outlining the importance of HbA1c testing, lipid panel testing, and an annual dilated eye exam. Following the initial letter, a reminder letter was sent to those members who had no claims data relating to the tests outlined in the initial letter. All participating physicians, including referral physicians, received a list of their patients to whom reminder letters were being sent.

Group education programs scheduled throughout the year at various community locations were also part of the intervention strategy. A certified diabetes educator presented programs on foot care, sick day management, stress management, nutrition and exercise. Concurrently, provider education was conducted through formal education programs, newsletters and mailings.

Three measures were used to evaluate results: Retinal exams for members age 31 and older; HbA1c tests; lipid panel tests for

those members 21 years and older who were on cholesterol reducing agents.

Results

Evaluation occurred one year from the first intervention. Improvements in compliance with preventive care guidelines were realized. The percentage of members receiving at least one HbA1c test increased from 44% in the pre-intervention period to 57% in the post-intervention period. ($p < .01$). Percentages of members receiving retinal eye exams increased from 26% in the pre-intervention period to 30% in the post-intervention period ($p < .01$). The largest gain was achieved in lipid panel testing; the percentage of participants receiving a lipid panel test rose from 58% pre-intervention to 92% post-intervention ($p < .01$). (See Figure 1.)

Discussion

The American Diabetes Association recommends that to achieve and maintain target glycemic control HbA1c should be tested at least twice a year in patients who are meeting treatment goals and who have stable glycemic control, and more frequently in patients whose therapy has changed or who are not meeting glycemic goals.⁷ Other indicators, including annual retinal eye exams and lipid panel testing also presented significant opportunity. Diabetic Retinopathy is estimated to be the most frequent cause of new cases of blindness among adults aged 2-74 years. An annual dilated eye exam is recommended for both Type 1 and Type 2 patients.⁸ Diabetes is associated with a two-to fourfold excess risk of coronary heart disease. Levels of LDL, HDL, total cholesterol, and triglycerides should be measured every year in adult patients.⁹ HbA1c testing, lipid panel testing and retinal eye exams were chosen

as interventions presenting for PrimeCare the greatest opportunity for improvement.

We conclude by agreeing with recent studies that indicate that investment in clinical systems to improve diabetes care may benefit both patients and payors.¹⁰ Interventions that encourage and remind patients and physicians to improve rates of HbA1c testing, retinal eye exams and lipid testing can have significant results. Regular HbA1c test results provide useful information to physicians and patients regarding health status and future medical care changes. Diabetic retinopathy presents a serious threat to vision. The results referenced in this article concur with prior studies demonstrating that a reminder intervention can improve compliance with diabetic retinal screening recommendations and allow for early intervention.¹¹ The rationale for the treatment of diabetic dyslipidemia as detailed in the American Diabetes Association technical review "Management of Dyslipidemia in Adults with Diabetes" focus on cardiovascular disease in diabetes. The ADA recommends that levels of LDL, HDL, total cholesterol, and triglyceride should be measured every year in adult patients.¹²

Future areas of study should include the merging of this data base with actual numerical laboratory data which will help in providing more disease specific feedback for providers and allow for increased glycemic control and patient compliance. Additional areas of study will include long-term follow-up of this group of patient's emergency room and hospital admissions, as well as monitoring of diabetes related complications. Also included will be the evaluation of patient education programs and their impact on disease progression and quality of life.

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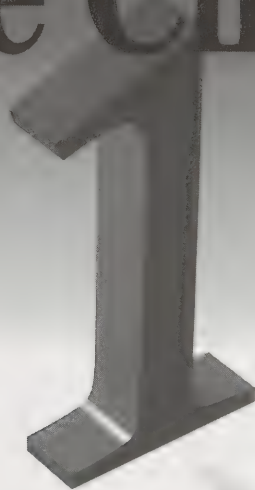
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What is Effective Diabetes Nutrition Therapy and Who is Qualified to Provide It?

By Rosalyn Haase, RD, MPH, CD and Elizabeth Spencer, RD, MS, CDE, CD

Introduction

The role of nutrition therapy in diabetes management has long been recognized. But just what is effective diabetes nutrition therapy? Is it handing out a pre-printed American Diabetes Association (ADA) exchange diet from a drug company? Is it giving patients advice about how to eat? Is it telling someone with diabetes to "watch your diet"?

To define effective diabetes nutrition therapy we must answer two questions. First, how can diabetes nutrition therapy produce improved clinical outcomes, reduced rates of long-term complications, more efficient use of medications, and reduced frequency of hypoglycemia? And second, who is qualified to provide diabetes nutrition therapy?

Perhaps the best place to start is with the Diabetes Control and Complications Trial (DCCT) as it

reveals much about the kind of nutrition therapy that made a difference in glycemic control.¹ Using a variety of meal planning approaches, dietitians had the flexibility to tailor the nutrition prescription and determine the frequency of follow-up based on each patient's needs to reach treatment goals for blood glucose levels. One criticism of the DCCT is that the specialized teams in research centers are not available in "real" world health care settings. Dietitians and diabetes educators in rural Wisconsin have indicated they are eager to participate in multi-disciplinary teams for diabetes care.²

Recognition of the importance of effective diabetes nutrition therapy as an integral part of the total management required to achieve hemoglobin A1C goals in the DCCT validated the role of dietitians as members of the diabetes health care team.³ It also led to the development of Practice Guidelines for Types 1 and 2 diabetes for use by dietitians.⁴ Studies have demonstrated cost effectiveness and improved glycemic control through the use of these practice guidelines provided by registered dietitians (RDs).^{5,6,7,8} Recent analyses of the cost-effectiveness of medical nutrition therapy provided by RDs for treatment of diabetes demonstrate that providing this coverage could save Medicare approximately \$407.5 million over 7 years.⁹

If we describe effective diabetes nutrition therapy, we must also determine who is qualified to provide it. Nutrition therapy is the most challenging aspect of diabetes management. Due to the complexity of diabetes nutrition therapy, it is recommended that patients be referred to an RD who is skilled in diabetes management. Although other health professionals contribute to nutrition therapy, the RD is the member of the diabetes treatment team responsible for coordinating overall nutrition therapy to ensure individualization of assessment, goal setting, intervention and evaluation.¹⁰ The Standards of Medical Care for Patients With Diabetes Mellitus¹¹ expressly include dietitians as key members of physician-coordinated teams to manage patients with diabetes. Similarly, the National Standards for Diabetes Self-Management Education Programs¹² recognize dietitians as professionals essential for management and delivery of quality services.

Registered dietitians are a necessary component of diabetes management in any setting, inpatient or outpatient and have the educational background to provide effective diabetes nutrition therapy, with more than five years of education and training specifically devoted to nutrition. A significant portion of the dietetic internship is dedicated to direct patient care. Nearly 40% hold

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masters or doctoral degrees.

Both the recognition of the importance of effective diabetes nutrition therapy in achieving glucose goals in the DCCT and the resulting practice guidelines have created an expanded role for the dietitian in the diabetes health care team. As members of the diabetes care team, dietitians are in a unique position to explain the relationship of eating and activity to blood glucose results, insulin timing and type, and episodes of hypoglycemia and hyperglycemia. In addition to completing a comprehensive nutritional assessment, negotiating goals with the patient, providing an individualized meal plan, and evaluating and adjusting the patient's plan and goals based on blood glucose levels, dietitians who are certified diabetes educators (CDEs) also perform the following:¹³

- Provide in-depth information on the pathophysiology of diabetes and an overview of diabetes management
- Provide sick-day management guidelines, beyond those relating to food intake
- Teach the use of blood glucose meters, depending on the practice setting
- Interpret blood glucose results and discuss adjustments in food, insulin, or medication
- Interpret laboratory results and recommend changes in therapy
- Review the effect of insulin or oral glucose-lowering medications on blood glucose levels
- Teach insulin preparation and injection skills/techniques, depending on the practice setting
- Guide patients to establish problem-solving skills
- Help select clients as candidates for intensive therapy
- Recommend protocols to ensure quality diabetes care
- Refer clients to other team

members as appropriate

- Provide professional expertise to other members of the diabetes care team and the community
- Develop, coordinate, and manage diabetes education programs

In spite of proven benefits of effective diabetes nutrition therapy provided by registered dietitians, many patients are denied access to these services. Three barriers have been identified.

First, lack of reimbursement continues to be a barrier, but the picture is getting brighter. Many managed care organizations now include coverage of nutrition therapy by registered dietitians. Wisconsin law mandates coverage for diabetes self-management education, which includes diabetes nutrition therapy for third party payers headquartered in Wisconsin. Currently professional organizations that advocate improved diabetes care are lobbying for diabetes self-management training coverage by Medicare Part B.

Second, lack of physician referrals prevents access to these services. A referral to a dietitian provides the patient with the message that nutrition therapy is an integral component of diabetes care. In addition, it provides the link needed by patients to access the services. The Standards of Medical Care for Patients with Diabetes Mellitus of the American Diabetes Association recommend individualized nutrition care, preferably by a dietitian familiar with diabetes.¹⁰ A service objective of *Healthy People 2000*, which defines health promotion and disease prevention objectives for the nation, is that 75% of all individuals with chronic conditions receive nutrition counseling.¹⁴

Third, patients often lack an understanding of the need for and

the benefits of effective diabetes nutrition therapy. Many patients with diabetes have become frustrated trying to "watch their diet" or use the now out-of-date "ADA" diets. Dietitians can help patients make flexible food choices with small continuous individual improvements rather than restrictive "diets" with long lists of forbidden foods.

Effective diabetes nutrition therapy is a cost-effective, patient-empowering therapy. All people with diabetes have a right to this care. Effective diabetes nutrition therapy provided by a registered dietitian with expertise in diabetes assures effective diabetes nutrition care and can help provide improved clinical outcomes for patients. To contact a dietitian in your area, contact the Wisconsin Dietetic Association at 1-888-232-8631. The American Dietetic Association also has a toll-free nationwide nutrition network, (800) 366-1655, which can provide names and addresses of local registered dietitians with diabetes expertise. You can also contact the American Diabetes Association at (800) DIABETES for listings of recognized diabetes education programs. Finally, you can contact a registered dietitian at your local hospital.

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Diabetes Patients Sought for Study at Medical College of Wisconsin

Medical College of Wisconsin endocrinologist Irene O'Shaughnessy, MD, is seeking men and women between the ages of 35 and 75 with Type II diabetes who are being treated with glipizide or glyburide, for a volunteer study of a new oral diabetes medication.

All study medication and blood testing will be provided free of charge. Interested individuals or their physicians please call study coordinator Stephanie Reinheimer at (414) 454-5504.

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New Guidelines Challenge and Energize Diabetes Health Care Providers

by Marc Kennedy, Special to WMJ

Diabetes is rapidly becoming one of the most serious health problems facing the US and the world. According to the Centers for Disease Control, diabetes has become the nation's seventh leading cause of death, yet more than one-third of diabetics do not even realize they have developed the disease. Plus, more Americans are developing diabetes each year — nearly 800,000 in 1997 reported the CDC. This translates into enormous costs to the health care delivery system, mainly to treat complications for those diagnosed late or whose disease was inadequately managed.

"In 1992, we spent \$91 billion on diabetes, half of this to care for complications," according to Jose Pulido, MD, professor of ophthalmology at the Medical College of Wisconsin. "One sixth of all our health care dollars goes to treating diabetes. Think of how much we could help the health care system in the US if we did a better job of treating diabetes."

"Nearly 25,000 diabetics will go blind needlessly this year, though in 90% of these cases vision could have been saved by detecting and treating the disease in time," added Pulido, who was recently named national chair of the Diabetes 2000 Project, by the National Eye Institute of the National Institutes of Health.

"The sad thing is that so much of this is preventable. Less than half of the 16 million diagnosed diabetics in this country have had

annual dilated eye examinations. Performing these exams once a year is the only way to detect the early signs of diabetic eye disease," said Pulido.

Pulido added that good blood glucose control for Type 1 diabetes can prevent diabetic retinopathy by 75%, and can contain it in 50% of cases of those who have already developed the disease. Unfortunately, this happens far too infrequently.

"Studies show that glycosinated hemoglobin tests are being performed at most 25 to 50 percent of the time," said Pulido. "And, referrals for eye exams are being done at most 50 percent of the time. These need to be done more. General practitioners need to consider referrals more often. In the long run, it is extremely cost effective for society to do so."

Pulido acknowledged that a change is beginning to happen. Medicare and Medicaid are already covering some aspects of diabetic care, and some insurers are following suit.

"But physicians need to follow the guidelines more conscientiously," he added. "We need to get pharmacists more involved too. Since insulin is over-the-counter, diabetic patients may be seeing pharmacists more than they are seeing their doctors, so we need to reach them with these messages, which may help direct patients to proper gatekeepers as well. This is going to take a huge concerted effort by all health care providers."

In addition to loss of sight, diabetics are threatened by renal disease, the specter of amputation, heart disease and stroke. In Wisconsin, more than 300,000 people suffer from diabetes, numbers that are gradually increasing.

To health care professionals in Wisconsin charged with treating diabetics, the current system clearly is not working adequately or efficiently. Therefore, representatives from more than 40 organizations created the Wisconsin Diabetes Control Program Advisory Group. They have now developed "Essential Diabetes Mellitus Care Guidelines" which recommend concrete steps health care professionals should take to help diagnose diabetes early, prevent the onset of the disease and minimize complications. These essential guidelines are summarized in a one-page, easy-to-read chart that can assist caregivers in a more systematically and comprehensively address the needs of their diabetic patients. [The Guidelines are discussed in more detail in an article beginning on page 17].

1st Step: Develop Guidelines

"Guidelines are established when there is a gap between what we know is good practice and what is actually being practiced," said Patrick Remington, MD, Chair of the Wisconsin Diabetes Control Program.

"Clearly this is the case with diabetes. Study after study shows

that there is a gap between good science and what is being practiced. Our development and distribution of these guidelines is an attempt to narrow this gap."

Key to the success of the diabetes effort is involvement across the health care spectrum, he added.

"Guidelines are not issued only to primary care doctors. They are also directed toward patients, so that they know what to expect, so they can develop their own expectations and present them to their health care providers, insurers and employers, all of whom also will receive the guidelines. Purchasers of health care need to know what represents good quality for their diabetic employees, as do payers so that the reimbursement plans and insurance policies can cover those practices that are best for diabetic patients."

"Experience with guidelines has shown that if they only go to doctors, then practice patterns change very little," Remington said. "It's when the patient public begins to demand this, when employers are willing to pay for procedures as the standard care, and when payers step up and are willing to cover time and cost to implement guidelines, that is when it will change."

Mammography a Model

"Ten years ago, it didn't matter if a doctor thought a 65-year-old woman needed a mammogram, or she thought she should have one," continued Remington. "Finally, the health care system responded. Now, in January 1998, Medicare pays for mammograms. Women believed it, doctors believed it, now finally the payers believe it."

"I believe the same will happen with diabetes; not overnight — there will be some bumps in the road. Diabetics will say they want it, but doctors or insurers won't be able to deliver it right away, they don't have the system in



Robert B.
Johnson, MD



Patrick
Remington, MD

"Guidelines are established when there is a gap between what we know is good practice and what is actually being practiced."

— Patrick Remington, MD

place to do so. That's why we are promoting this now, to get them to begin to put it into place."

To Remington, the ultimate goals are simple:

- longer-term control of diabetes to keep fewer diabetics from losing their sight,
- to reduce the number of amputations,
- and to decrease those with end-stage renal disease.

Achieving these goals will be more far more difficult, of course, requiring a comprehensive alteration of attitudes toward treating the disease. But just the fact that so many different organizations are involved and dedicated to making this shift in priorities has him thinking that they are on the right track.

"It's taken the Advisory Group of more than 50 people over a year to hammer out these

guidelines, to make them practical and user-friendly," he said. "The next step is to promote the guidelines, to get the word out, which we are in the middle of now."

"The third step is the most challenging: implementing the guidelines. That has to be done in every community in the state, in every practice. We have to develop partnerships within communities, with public health officials, local physicians, employers, payers, the whole gamut. To assist us in this effort, we plan to apply to the Centers for Disease Control for a grant to establish community-based diabetes education and intervention programs." [See sidebar, page 44.]

Second Step: Promote the Guidelines

"These guidelines are goals, what we should strive to achieve," said Robert B. Johnson, MD, family physician in River Falls, representing the Wisconsin Academy of Family Physicians on the WD-CPAG. (Please see Dr. Johnson's Guest Editorial on page 23.)

"They don't tell us all how to get there. Not everyone will get perfect care. That doesn't mean that we shouldn't try to improve care, even if just a little, for everyone."

Johnson does not want to see physicians overwhelmed by the prospect of having to incorporate a new set of procedures into their practice concerning diabetic patients.

"In the face of this control initiative we don't want doctors to throw their hands up and say 'what's the use? We'll never get total diabetes control,'" Johnson said.

"Studies show that incremental improvement, a little here and there, leads to better outcomes overall, even if you can't achieve perfect control. It's not as if you don't achieve perfect control, you

won't solve anything. It makes a difference, just trying to do better, even if you can't reach ideal goals with all patients," said Johnson.

Gregory Doelle, MD, an endocrinologist at the Marshfield Clinic, agrees. "If doctors simply read the one-page document on the essential guidelines, we'll really see a big improvement in how people with diabetes are managed, concerning glycemia, coronary disease risk, retinopathy, kidney disease.

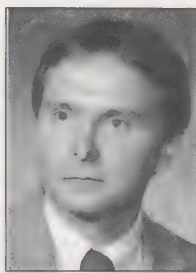
"These are easy guidelines; they are not challenging in themselves. But they aren't done in many practices, and so appropriate interventions aren't made. We urge everyone to tape it up on examination room walls as reminders to physicians, nurses and patients that these elements should be included in every examination."

Step Three: Implementing the Guidelines

As Remington said, putting these guidelines into practice is going to be the difficult aspect; it will take time, effort and cooperation.

Johnson agrees, but adds that there is already a solid group of patients and professionals prepared to spread the word about the guidelines as well as to help assemble teams in their own communities.

"These guidelines are already out there from American Diabetes Association," said Johnson. "We made modifications, and have gotten broad-base support. That's the difference — we now have many groups involved, so more will become aware of them. The more that these guidelines are used, the more patients will get their eyes checked, the more cases of diabetic retinopathy will be found earlier and treated. The more that are screened for diabetic kidney problems and receive treatment, the better."



Gregory
Doelle, MD

*"Not everyone will
get perfect care.
That doesn't mean
that we shouldn't
try to improve care,
even if just a little,
for everyone."*

—Robert B. Johnson, MD

Johnson added that the conventional way of sending diabetics into large university or research institutions for care has proven far too ineffective and inefficient.

"It's just not cutting it. Only about 3% of diabetics get care from a medical diabetes specialist. We need to make care available in small towns, we need to have professional teams all over state. Not all teams would be the same, of course, nor should they be. There is no black and white way to do it. Each community should be formed to address the specific needs of its own diabetics in ways that are appropriate."

Paradigm Shift

While it has yet to be shown that such an alternative approach to treating and diagnosing diabetes on a large scale can work, said Johnson, "Studies have shown that nurses, educators, dietitians and physicians — as a team — can make a difference if they are

involved in follow-up, especially in non-traditional ways.

"Above all in this non-traditional approach, patients have to be involved in their own care. Having a physician see a diabetic four times a year, and an educator once a year just doesn't get it done. Patients themselves must be taught to do a lot by themselves. When they are educated properly, patients can manage diet and exercise; test their own blood sugar; and, adjust medication or insulin doses.

"However, patients won't always learn it all at one sitting. It is a complex process, and they need to have someone to call when they have questions. Some are not easy to answer. Some I can't answer. But my educator may be able to, or my dietitian. That's why the team approach is so vital."

Creating Teams is Key

Unfortunately, there are no blueprints for creating teams to treat diabetes in this state. Though other states have initiated similar programs and can provide some background information, Control Program advisors emphasize the importance of local input and control in establishing these teams.

"If you just take a template from outside and try to make it work in Wisconsin communities, you are not likely to succeed," said Remington. "There has to be a sense of grassroots support, input and ownership, or it will fall by the wayside."

"Organization is key," said Doelle. "True, trained professionals may not be available in some parts of the state. But in most areas, educators and dietitians exist, so the problem is not availability; it's organization."

Johnson concurs that physicians may not be aware of educators and dietitians in their areas.

The hope is that through publicizing the Diabetes Control Program, more of these health care professionals will begin talking to one another and collaborating to form local diabetes education teams. This won't happen spontaneously, he cautions.

"This requires someone with the energy and savvy to organize," said Johnson. "It would be easy if the local physician takes charge, but that is not always feasible. Others who are trained in this type of activity may be dying to be involved, but they won't want

to step on the doctors' toes. I would like to see physicians who are not inclined or are unavailable to lead such efforts to fully support them in their communities. They owe it to their patients to promote these efforts in any way they can."

Focus on Diabetes

Physicians Prepare for Changes in Treating Diabetes

by Marc Kennedy, Special to WMJ

As the gospel of the new diabetes treatment guidelines spreads, some family physicians and general practitioners may find that they are dealing with a whole new scenario.

"The hard part is getting used to the need to keep changing medication with some diabetics," said Robert B. Johnson, MD, River Falls. "What works this week may not work next year, even if a patient is not on insulin.

"With diabetes, you have to be diligent; eventually one therapy doesn't work, and the patient gets worse unless therapy changes."

In recent years, treatment for diabetes has evolved tremendously. Much of this may be new to many physicians.

"So much has changed in recent years," said Johnson. "We all need to learn more — where to look next when one medication quits working. Also, many Type 2 diabetics will end up on insulin, and many doctors aren't familiar with insulin therapy, especially the more sophisticated regimens. Most had never been taught how to treat diabetes and monitor it. This often means daily adjustments of doses. It isn't feasible for the doctor to talk to a patient every day, so the patient needs to know how to take charge. But as

a physician, you can't just throw them out in the world and tell them to do it — that isn't going to work either."

Physicians can't and shouldn't do it all themselves. It takes more than a physician to help educate diabetics about the need to monitor diet, exercise, blood sugar levels and other aspects upon which their health is so precariously based. The concept of a team of physicians, educators and dietitians working together to help train diabetics to help regulate their own health becomes a crucial component.

"You need to have routine contact, more so than with other types of patients," said Johnson. "Some patients may catch on quickly, but some don't. I end up doing a lot of counseling over the phone. It takes a few months for patients to feel comfortable while learning to make those adjustments in medication or testing. They need to know that they have someone to talk to if have questions.

"The danger is that there won't be someone available to check with, or to answer questions.

He added that for diabetics with complications, a little information without regular follow-up may lead to serious problems. "If all you say is get 'your blood

sugar near normal,' it will be a disaster."

Improving Long-Term Control

Regularly running the proper tests to monitor for diabetic kidney disease and diabetic retinopathy are key components of the guidelines, but there is more to long-term diabetes control than that, experts said.

"Ordering tests is easy," said Johnson. "All the doctor has to do is remember to order them. But just ordering these tests isn't enough. Anyone can order A1C tests, but what can they do about it?"

Jose Pulido, MD, professor of ophthalmology at the Medical College of Wisconsin, agrees. "Good control is not just taking an occasional blood sugar. It means regularly doing glycosylated hemoglobin tests as well. And, it is extremely important to educate patients concerning the significance of these levels. This takes time and persistence.

"It is extremely hard to achieve long-term control. It requires multiple blood tests, multiple injections. Innovations with insulin pumps and non-invasive monitors will make intensive treatment more acceptable to patients because they won't require as many needle sticks during the

day.”

Still, Pulido reiterated the value of tight glucose control to effectively contain progression of both Type 1 and Type 2 diabetes. “It is also critical to test for diabetic retinopathy early to decrease complications and to follow guidelines of annual exams,” Pulido said, adding, “and pregnant women should be examined at the beginning of pregnancy and at each trimester specifically for this.”

Educating Patients to Enhance Their Responsibility

Johnson added that as family physicians more frequently deal with the needs of diabetic patients, such knowledge will come. Plus, associating with other experts on the community teams — dietitians and educators — will help increase physicians awareness as well as boost the knowledge level of diabetics, enabling them to play a larger role in managing their own disease.

“This may not be in the guidelines per se,” he said. “Obviously, diabetes is easier to care for if caught early, when resulting treatment is more likely to work. But the main preventative therapies lie within the patients themselves. Exercise, better diet — less cholesterol, less fat, more breads, fruits, less red meat. I know we’ve gotten used to some of those things, we’ve gotten lazy. But this is something as physicians we need to pound home.”

He added that educating diabetics, as well as the population at large, is paramount in trying to stem the increase in diabetes incidence. This may be analogous to beating the proverbial dead horse, but to experts in diabetes as well as other medical fields, it is a dead horse that should be beaten often.

“If you look at American Heart Association, the American Cancer Society, and the Diabetes

Association, you are looking at the same recommendations regarding diet and lifestyle,” said Johnson. “Lower cholesterol and high blood pressure through diet and exercise. The same thing that works to improve chances of avoiding high blood pressure and reducing heart attacks, also improves chances of avoiding cancer and helps to prevent and improve treatment of diabetes. We are all sending patients a consistent message. However, it’s one we need to send often. It’s hard work to change diet and lifestyle, exercise,

*“To properly
inform, monitor
and evaluate...is a
long-term commitment
of personnel
and resources”*

but it isn’t as though people haven’t heard it before.”

Health care professionals can’t force patients to read or follow instructions. They can at best reiterate the ramifications of certain actions or inaction. But, again, when counseling someone concerning blood pressure, the message is relatively simple. In the case of diabetics, the instructions are more complex, and may vary and change depending on the progression of the disease and its complications. This type of long-term, regular intervention takes resources — to be exact, time, effort and money.

Why Medicare Changed its Tune

To properly inform, monitor and evaluate the progress of diabetic patients is a long-term commitment of personnel and resources. The first question that arises invariably is “Who is going to pay

for it?”

“Part of the success of these new guidelines is in communicating and organizing ahead of time,” said Johnson. “But part of it is financial. Diabetes education is not something that Medicare and private insurance has paid for traditionally. That’s changing — Medicare is on track to start paying for much of it and some carriers are beginning to do so as well.”

Medicare changed its tune on diabetes simply because it makes sense, said Johnson. In other words, they did the math.

“Nine percent of patients on Medicare are diabetic,” according to Johnson. “However, 27% of their entire budget was spent on diabetic care. That’s why they are re-evaluating it.”

Medicare officials are taking the word of the Diabetes Association that if it cares better for diabetics — which involves a certain level of testing, education, and follow-up care — it will save some of this money. While he applauds this change in policy, it bothers Johnson to an extent that much of the success of such programs will ultimately rest upon the shoulders of physicians.

“The worry I have for family physicians who follow the guidelines and strive for good glucose control to prevent complications is that if a patient does not achieve good control, it’s the physician’s fault.”

As the Diabetes Control and Complications Trial (DCCT) indicated, obtaining proper control for diabetics takes a true group effort. The initial results, according to Johnson, showed that it took almost 30 contact hours per month with a single patient to achieve control, involving a physician, pharmacist, and dietitian.

“No budget could afford this, of course,” he explained. “However, further tests showed that it

could be done with eight hours per month, plus other models could bring this number of contact hours down even more, perhaps down to as low as 2.5 hours, with only .5 of it physician time."

At any level, dietitians and educators are essential to helping diabetics learn to help manage their own disease, said Doelle, a Marshfield Clinic endocrinologist. "Self management issues are critical. And while services are available in most locales in this state, third party reimbursement is crucial. It annoys physicians when they recommend patients see an educator or dietitian and the managed care program won't cover education or counseling. Right now, that's my biggest obstacle in my practice."

Though Medicare is beginning to pay for diabetes services, and private providers and insurers are likely to follow, there hasn't been a stampede to do so at this point.

"It's natural for insurance companies to be hesitant when it comes to covering preventative practice," said Johnson.

Therefore, when it comes to following the new guidelines, clinics and providers may be on their own for the time being.

The new guidelines recommend diabetics visit a dietitian and educator annually. "That represents the bare minimum," said Johnson, who says his clinic has to this point underwritten the cost of having a dietitian and educator on staff. "It costs us money to have that position. But it's something that my clinic feels is important for good care for diabetics. Changes in insurance and Medicaid will help, certainly. But then again, what will they reimburse? In reality, if clinics are going to lose several thousand dollars they won't do it, or they'll be much less likely to."

So some will contract out dia-

betes education services, he said, which may dilute effectiveness. "The barrier here is that this is another step for the patient. In my office, they are captives; I just send them across the hall, or the educator comes in to the exam room. Having it in-house is great service. Plus, the educator and I are more likely to work together than if I'm sending someone off to Eau Claire."

While this type of exchange due to proximity works well for all involved in Johnson's clinic, it may not be realistic for every office or clinic. Many may have to rely on dietitians and educators who subcontract these services to providers.

"Physicians should be reviewing a diabetics treatment plan as outlined in the guidelines at every visit," added Johnson. "The doctor and patient should review goals, determine what has and has not been met, then reassess the treatment plan. Of course, some people are never going to get the message."

Johnson said it is important for physicians to keep everything in perspective.

"It's hard sometimes in the face of it all, to remember the successes you have," he said. "Individually, sure, I see many successes, but some end up with care short of where you'd like it to be. But even if you don't achieve perfect control of diabetes, you are still accomplishing something. The DCCT study showed us that even small changes in controlling A1C levels decreased the risk of developing diabetic retinopathy. While a nice goal, perfect control is not always totally necessary to achieve results."

CDC Grant May Help Establish Community Diabetes Education

The key to implementing the Essential Diabetes Mellitus Care Guidelines developed by the Wisconsin Diabetes Control Program Advisory Group and recently announced is local community innovation and support.


"This is the most challenging and important aspect to making these guidelines work," according to WDCP Director Patrick Remington, MD, MPH. "We need involvement in every practice and in every community. The only way for these guidelines to take root and become part of the health care system is to develop a partnership among the providers, health care professionals, employers, local governments and patients themselves."

"To take us to this next stage, we are applying to the Centers for Disease Control for a comprehensive grant to move into the implementation phase of the guidelines. We have the guidelines, we're promoting them to all the integral parties involved, now we have to take the step and develop a community demonstration program based on the needs of Wisconsin citizens."

Remington said the CDC grant will help support a five-year plan to develop ways to help implementing the guidelines throughout state.

"Each community will take a different approach, based on their needs. Some likely will already have something in place. Some won't, but they may already have the health care professionals available to tap into the system. Other communities may not even have that. It won't happen overnight. But we already have a good start with the commitment of so many around the state in developing these guidelines. The CDC grant will help us launch the program directly into the local communities and clinics where it can do the most good."

Remington said that the grant application will be written and submitted later this year.



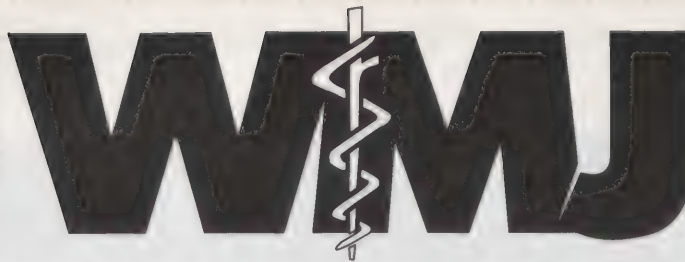
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WISCONSIN MEDICAL JOURNAL

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Editorial

Diabetes Mellitus: When it Rains, it Pours. . . .

Irene M. O'Shaughnessy, MD, and Kesavan Kutty, MD

This issue of the *WMJ* focuses on diabetes mellitus, which affects an estimated 20 million Americans. The majority of diabetics have non-insulin dependent (type II) diabetes mellitus (NIDDM).

RANGE OF PROBLEM

Rudolph and Miller report in this issue of the *Journal* (see page 55) that during 1996, Wisconsin hospitals discharged from their facilities 6,597 inpatients with a principal diagnosis of diabetes mellitus¹. For a total of 38,470 days of care that these patients received, almost \$61 million were generated in hospital charges (excluding physician fees). For Wisconsin — a state with only 5.1 million residents — to spend \$61 million for inpatient care of one single disease is simply staggering. The mortality and morbidity of diabetes is distributed indiscriminately across the races; whereas we have known that African Americans tend to do poorly with the disease and its vascular complications, Tavis and colleagues offer evidence that Native Americans in Wisconsin have a higher mortality rate attributable to diabetes, as compared with other Wisconsinites in general and with the US population in particular² (see page 58).

Diabetes is a systemic disease; a significant portion of the cost of medical care of the diabetic goes towards managing its microvascular and macrovascular complications. It is notable that among ambulatory surgical patients with a principal diagnosis of diabetes, almost 78% had eye procedures performed, mostly removal of chorioretinal lesions¹. An analysis of the same article reveals that the per capita cost of inpatient hospitalization was highest in Waukesha county, followed by Kenosha and Milwaukee counties. The lowest cost of inpatient hospitalization was in St. Croix county, and the next two higher locations were Douglas

and Burnett counties. Does this information tell us that the patients in the more urban areas of the state are sicker? Does it imply that patients get more cost-effective care in rural areas or is the cost lower due to access problems? Are diabetics in rural areas getting more outpatient care and less inpatient care? We simply do not know.

DRUG THERAPIES

Elson and Meredith have provided a succinct review of the drug therapy of NIDDM³ (see page 49). The recent profusion of drugs for diabetes clearly necessitates such a review for the practicing physician. Although we are successful in prolonging the lives of our patients with diabetes, the complications of this disease take a heavy toll on them. In order for us to make an impact on the lives of our diabetic patients, we must be firmly convinced that meticulous management of the disease not only lends respect to the blood sugar values, but that the reward for such meticulous control is the prevention or at least, the delaying of diabetic complications. For a long time, the benefits of meticulous glycemic control remained shrouded in controversy; however, the Diabetes Control and Complications Trial (DCCT) has proven once and for all, that intensive management of insulin-dependent diabetes mellitus (IDDM) prevented or slowed the progression of many microvascular and macrovascular diabetic complications, including retinopathy, nephropathy and neuropathy⁴. As clinicians with incurable optimism, we readily extrapolate these results into the larger realm, NIDDM. The skeptics would caution us against any such conclusions or extrapolations. Only future research can determine whether we are correct, but do we really have the luxury of time?

Diabetic nephropathy alone imposes significant economic and noneconomic costs. The accumulative risk of nephropathy in diabetes (IDDM and NIDDM) is between 30-50%. Besides the duration of the diabetes itself, conditions that predict the development, severity and progression of diabetic nephropathy include hyperglycemia and associated metabolic derangements, hypertension, excessive protein consumption, and cigarette smoking.

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Nephropathy evolves over many years, manifesting microalbuminuria initially and macroalbuminuria later in its course.

The hallmark of nephropathy is proteinuria. Microalbuminuria, defined as a urinary albumin excretion between 20 and 200 µg/min, is an early harbinger of renal involvement in the diabetic, and may develop within five years of the onset of IDDM. However, because a period of asymptomatic hyperglycemia is generally interposed between the onset of NIDDM and its clinical recognition, microalbuminuria and therefore, renal involvement, may already be present at the time of diagnosis of NIDDM. Screening for microalbuminuria is extremely important, because it not only predicts worsening proteinuria and renal function over time, but also a high overall mortality and cardiovascular mortality and morbidity in NIDDM.⁵ As microalbuminuria progresses, blood pressure gradually increases. With the development of macroalbuminuria the glomerular filtration rate begins to decline at an accelerated pace.

Several interventions can prevent or postpone the onset of microalbuminuria. Good metabolic control, defined as Hemoglobin A_{1c} between 7-8.5% range (mean, 5.5%) and control of blood pressure are two major strategies in this regard. Angiotensin converting enzyme inhibitors (ACEI) and some calcium channel antagonists also can reduce proteinuria and slow the progression of nephropathy to renal failure. These beneficial effects go beyond their effect on blood pressure alone, because treatment of the "normotensive" microalbuminuric subject with antihypertensive medications, in particular the ACEI, has been shown to significantly reduce the onset of macroalbuminuria⁶. Diabetic nephropathy is also ushered in by protein overload and cigarette smoking, both of which are modifiable risk factors.

AGGRESSIVE TREATMENT

Gohdes, et al, describing the Indian Health Service Experience, reported that standard, ongoing monitoring of key variables of diabetes care, using simple and reliable methods such as blood pressure and hemoglobin A_{1c}, allowed individual facilities to improve diabetes care⁷. The level of care provided to individuals during the DCCT was arduous and expensive; one wonders if such an experience can be duplicated in a primary care setting. With carefully chosen objectives and some changes in the patterns in which physician offices operate, it may be possible to extend some aspects of this "intensive diabetic treatment" to many, if not all diabetics, as suggested by Blustein, et al in this issue of the Journal⁸. The challenge posed by diabetes

management is profound, and we may well be falling short on this challenge. The lack of patient motivation, lack of access to good medical care, poor physician practices, and inability to get the patient to participate in nutritional and pharmacological management are important barriers, just to mention a few.

There are over 16 million Americans with NIDDM. Universal access to comprehensive preventive services, a system of co-management between primary and specialty care services and programmatic modifications in the current health care system to raise patient and public awareness of the seriousness of NIDDM are all important medical and societal solutions to improve care and outcome of therapy of this disease⁹. The results of a study yet to be published indicate that 14% of diagnosed diabetic adults in Wisconsin live below the poverty level. Fully 6% are 200% below poverty level¹⁰. Poverty, old age and diabetes appear to keep company. When it rains, it pours...

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Therapy for Type 2 Diabetes Mellitus

Diane F. Elson, MD and Melissa Meredith, MD

ABSTRACT

Type 2 diabetes mellitus is a common, chronic disease affecting nearly 6% of the adult US population. It remains a leading cause of morbidity and mortality in Wisconsin as well as the country. Multiple lines of evidence show that controlling blood glucose in patients with type 2 diabetes can significantly decrease the development of and/or progression of microvascular complications as well as the macrovascular complications of diabetes. There are now four different classes of oral medications which are available to treat diabetes - sulfonylureas, biguanides, thiazolidinediones, and alpha-glucosidase inhibitors. Each class works differently to treat the underlying defects of diabetes which include impaired insulin secretion, insulin resistance and exaggerated postprandial hyperglycemia. This article will compare and contrast the different agents available, including appropriate use of each agent as monotherapy and in combination therapy. It will also discuss use of insulin in the patient who has failed oral therapy. Rational use of these tools, tailored for the individuals metabolic abnormalities, should allow for good glycemic control in the majority of patients with type 2 diabetes mellitus.

Relaxation, massage, opium, and moderate exercise were among the recommended options for treatment of diabetes mellitus nearly 100 years ago.¹ In the late nineteenth century, diabetes was a poorly characterized disorder, which was increasing in prevalence even at that time. Today, the underlying defects contributing to the development of type 2 diabetes are better understood, and include peripheral insulin resistance, relative pancreatic β -cell insufficiency, increased hepatic glucose output, and an exaggerated postprandial

glucose excursion.^{2,3} However, despite our better understanding of the disease, the prevalence of type 2 diabetes continues to increase in the US, now afflicting over 6% of the population. As our population ages and the proportion of obese people increases, we can expect to see a marked increase in the prevalence of diabetes in the future. Fortunately, our treatment options for type 2 diabetes have expanded remarkably within the last few years. Along with these new treatment options comes the exciting, although likely expensive, possibility of prevention of type 2 diabetes in at risk individuals.⁴

THE CASE FOR CONTROL

The chronic micro- and macrovascular complications of diabetes mellitus make it the number one cause of adult blindness, of end-stage renal disease, end of nontraumatic amputations in the US. The estimated costs of the increased morbidity and mortality of this disease are estimated at over \$100 billion dollars.⁵ Several lines of data suggest that the debilitating complications of diabetes can be reduced or possibly avoided altogether with good management of the disease. Epidemiological data directly correlate the incidence of retinopathy with the degree of glycemic control in type 2 patients as well as type 1 patients.⁶ A recent study in Japan found significant decreases in both retinopathy and nephropathy in type 2 patients treated with intensive insulin therapy. The degree of improvement was nearly superimposable on the results demonstrated in type 1 patients in the Diabetes Complications and Control Trial.^{7,8}

The macrovascular complications of type 2 diabetes remain the leading cause of death in diabetic patients.⁹ A number of studies published over the last several years demonstrate that glycemic control plays an important role in the development of atherosclerosis among diabetics. Progressive increases in morbidity and mortality from coronary artery disease are seen in patients with Hgb A_{1c} values exceeding 8%.¹⁰⁻¹⁴ The latest National Cholesterol Education Program guidelines suggest therapy to reduce LDL

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Drug	Dosing Schedule	Side Effects	Cost
Glyburide	1.25-20 mg/day, qd-bid	Weight gain, hypoglycemia	\$
Glipizide	2.5-40 mg/day, qd-bid		
Glipizide XL	5-20 mg/day, qd		
Glimepiride	1-8 mg/day, qd		
Metformin	500-850 mg tid	Nausea, diarrhea, anorexia, lactic acidosis	\$\$
Acarbose	25-100 mg tid	Bloating, flatulence, elevated transaminases	\$\$
Troglitazone	200-600 mg qd	Elevated transaminases, weight gain, edema	\$\$\$\$
Insulin	Variable	Hypoglycemia, weight gain	\$\$-\$

Table 1. Comparison of therapies for type 2 diabetes mellitus

cholesterol in diabetic patients (even in the absence of overt coronary artery disease) to < 100 mg/dl. With these efforts, as well as attempts to improve glycemic control in diabetics, we can potentially reduce the incidence of coronary artery disease. Although an increased cardiac mortality has been claimed to follow aggressive attempts to lower glucose levels in the past, more recent data indicates that, not only can aggressive anti-hyperglycemic control be pursued safely, but that near-normalization of blood glucose levels should be our treatment goal.¹⁵

However, despite our knowledge of the importance of glycemic control as well as the profusion of drugs for type 2 diabetes, a large number of our patients are achieving suboptimal glycemic control, based on the 1998 American Diabetes Association (ADA) care guidelines.¹⁶ The most current recommendations are to maintain fasting glucose levels below 120 mg/dl, bedtime glucose below 140 mg/dl, and Hgb A_{1C} values no higher than 7%. More aggressive therapy is warranted when Hgb A_{1C} values exceed 8%. We will review current treatment options for type 2 diabetes, including some recommendations for diet and exercise, but focusing primarily on drug therapy. The relative efficacy, cost, and side effects of the different types of medications will be discussed, as well as the use of combination therapy.

DIET AND EXERCISE

Obesity has long been recognized as a contributing factor to the development of type 2 diabetes. Since at least 80% of type 2 patients are obese,^{17,18} diet and exercise should always be considered first line therapy for this disorder. Even minimal weight loss of 5-10% of body weight can be extremely beneficial in improving glycemic

control.¹⁸ Although diet and exercise are efficacious and cost-effective (and typically have few side effects), this therapy is possibly the most difficult for patients to comply with. Despite the fact that 50% of patients can achieve adequate glycemic control initially with weight loss, diet and exercise, subsequent failure is frequent, usually related to the combined forces of noncompliance and disease progression.^{17,19} Current diet recommendations from the ADA have changed somewhat from those employed earlier in the decade. These changes have arisen from data indicating that high carbohydrate diets (especially if high in simple sugars) in diabetics can worsen hypertriglyceridemia and possibly contribute to atherosclerosis.²⁰ Popular commercial and fad diets using high protein content can result in rapid weight loss and improved glycemic control, but long term compliance is difficult and may in fact exacerbate nephropathy. Although reaching ideal body weight would be "ideal," this end is rarely feasible, and the ADA recommends a diet geared to weight reduction, consisting of 10-20% protein, 50-60% complex carbohydrate, 20% fat (predominantly monounsaturated), limited to <300 mg cholesterol, and 20-35 grams of dietary fiber. Replacement of micronutrients (e.g., magnesium and chromium) is recommended for those patients who may be deficient in these nutrients.¹⁶ Exercise offers tremendous potential to improve glycemic control in diabetics, potentiate weight loss, improve insulin sensitivity, and reduce risk of coronary disease. Moderate aerobic exercise (at 50-70% maximum O₂ uptake) for 20-45 minutes, at least three days per week is recommended.^{16,21} Appropriate screening for coronary artery disease should be undertaken prior to prescribing exercise, as should evaluation for retinopathy, nephropathy, and neuropathy. Comfortable, pro-

tective footwear should be worn, and feet should be inspected after exercise to look for pressure areas. For those patients using drug therapy, blood glucose monitoring should be performed before and after exercise, and medication adjusted appropriately to avoid severe hypoglycemia. Patients should forego exercise during periods of marked hyperglycemia.¹⁶

SULFONYLUREAS

Drug therapy should be initiated when diet and exercise alone are insufficient to achieve adequate metabolic control. Sulfonylureas have been the oral agents used predominantly in the US during the past 30 years. Sulfonylureas stimulate pancreatic β -cell secretion of insulin via activation of K^+ -ATP channels in the β -cell membrane. While some sulfonylureas are purported to improve insulin sensitivity, this effect may be due largely to reduced glucose toxicity.²² The second generation agents (glyburide, glipizide, and glimepiride) are preferred over the first generation agents (e.g., chlorpropamide, tolbutamide) due to a better safety profile. All of the second generation agents are equally effective in lowering glucose levels, typically decreasing the HgbA_{1C} about 2% when used as monotherapy. The major effect of sulfonylureas is on lowering fasting blood glucose, with little, if any effect on postprandial hyperglycemia. Glyburide and glimepiride have active metabolites that may increase the risk of hypoglycemia. Therefore, glipizide may be safer in the elderly or in patients with renal impairment. Once daily preparations can improve compliance and these drugs are less expensive compared to other available oral agents. Sulfonylureas have a secondary failure rate of approximately 10% per year. Side effects include weight gain, exacerbation of dyslipidemia, and hypoglycemia. Given their mode of action, sulfonylureas are preferred for lean type 2 diabetics, where β -cell insufficiency may be the predominant defect.

BIGUANIDES

Biguanides were first introduced to the US in the 1960s, but the drug, phenformin, was subsequently withdrawn from the market due to a high incidence of lactic acidosis. The class was re-introduced in 1995 with the release of metformin. These derivatives of guanidine, a fairly toxic substance used to treat diabetes during the Middle Ages in Europe, require the presence of endogenous insulin for activity. Although the exact mechanism of action by which metformin works is unknown, its major effect is to decrease hepatic glucose output probably through an effect on glu-

coneogenesis. Metformin also appears to secondarily improve peripheral insulin tissue sensitivity, possibly through effects on insulin receptor binding activity.²³ Metformin offers some potential therapeutic advantage due to in vitro effects of decreased plasminogen activator inhibitor-I levels, increasing post-ischemic blood flow (in contrast to sulfonylureas, which in vitro show impaired post-ischemic vasodilatation and decreased blood flow), decreased platelet aggregation and increased fibrinolysis. However, it is as yet unclear if any of these effects are clinically significant at recommended doses. Metformin, like sulfonylureas, works primarily on lowering fasting blood glucose and is thus comparable in efficacy to sulfonylureas. When used as monotherapy, it decreases the Hgb A_{1C} about 2%.^{23,24} Potential advantages of metformin use include lack of hypoglycemia, improvement in dyslipidemia, insulin sparing effect, decreased circulating insulin levels, and weight loss (or at least lack of weight gain). Metformin has more side effects than sulfonylureas, which tend to limit its use. These side effects include nausea, diarrhea, bloating, anorexia, and taste distortion. Side effects are often transient and can be minimized by dose titration and ingestion of the drug with food. The maximum effective dose of metformin is 1000 mg b.i.d.²⁵ Due to the risk of lactic acidosis in renal insufficiency, metformin is contraindicated when the serum creatinine is > 1.4 mg/dl (or CrCl < 60 ml/min), and also should be avoided in chronic acidotic states or conditions that predispose to renal insufficiency.²⁶ When used in appropriate patients, metformin is a safe and effective medication.

ALPHA GLUCOSIDASE INHIBITORS

Alpha-glucosidase inhibitors (acarbose) block digestion and absorption of carbohydrate from the proximal small bowel, reducing post-prandial glucose excursions and lowering insulin requirements. Caloric malabsorption does not occur at usual therapeutic doses as the carbohydrate is absorbed eventually in the distal small bowel. Thus, acarbose is most helpful in patients with exaggerated post-prandial hyperglycemia, and has little effect on decreasing fasting blood glucose. Acarbose is relatively less potent than either sulfonylureas or metformin when used as monotherapy, typically lowering the Hgb A_{1C} 0.51.0%.²⁷⁻²⁹ Because of its mode of action, the drug must be taken with the first bite of each meal, which may be a limiting factor for compliance. Side effects occur in almost 80% of patients and are primarily gastrointestinal, with

bloating and flatulence being the most common. Elevation in liver enzymes can also be seen. Gastrointestinal side effects can be reduced by slow drug titration, and tend to improve after six-eight weeks of use.

THIAZOLIDINEDIONES

Troglitazone is a member of an entirely new class of drugs known as the thiazolidinediones. These drugs, like metformin, require endogenous insulin for activity. Troglitazone affects glycemic control primarily by improving peripheral insulin sensitivity at adipose and muscle tissue³⁰

Thiazolidinediones stimulate peroxisome proliferator activated receptors (PPAR), a super-family of nuclear receptors, similar in structure to the steroid and thyroid hormone receptors. PPAR-gamma is the most likely ligand of the thiazolidinediones.

The PPAR-gamma regulates DNA sequences in the thiazolidinedione responsive genes, with resultant alteration in protein transcription.

Thiazolidinediones may induce expression of genes that encode for glucose transporter proteins, particularly glut 4.³¹ Initially approved only as adjuvant therapy for type 2 diabetics poorly controlled with insulin therapy, the drug has since been approved for monotherapy and for combination use with sulfonylureas.^{32,33} Potential benefits of troglitazone therapy include insulin sparing activity and beneficial effects on HDL cholesterol and triglycerides.³⁴ Troglitazone is taken once a day with the largest meal of the day (to enhance absorption). In general, troglitazone is very well-tolerated with few side effects. The most common side effects include weight gain (of 5-15 pounds, particularly in patients on combination therapy), mild gastrointestinal upset and edema. Recent concerns have arisen regarding the potential for hepatocellular injury with the use of troglitazone. Transaminase elevations have been reported, as well as hepatic injury requiring transplantation and leading to at least one death. New guidelines for drug monitoring, therefore, have recently been issued. Liver enzymes should be obtained monthly for the first six months of therapy, every other month for the next six months, then periodically thereafter. The drug should be discontinued if liver enzymes increase four-fold. Absorption of troglitazone is limited by concomitant use of bile acid sequestrants.

Troglitazone may also interfere with the activity and efficacy of oral contraceptive agents. Of interest, anovulatory women with insulin resistance and polycystic ovarian syndrome may resume normal menstrual cycles with troglitazone therapy, but the FDA has not yet approved the drug for this

purpose. The drug is classified as pregnancy category B, but it is not approved for the management of type 2 diabetes during pregnancy.³⁵ The drug can be used safely in renal insufficiency.³² Troglitazone is less potent than either sulfonylureas or metformin when used as monotherapy (decreased Hgb A_{1C} 0.5-1.0%), and is extremely expensive, making it a less desirable choice for initial therapy at this time. Both metformin and troglitazone may play a role in the prevention of diabetes, and are currently being investigated in this role through an ongoing NIH study.⁴ Given the mode of action of troglitazone, its onset of action may be delayed for weeks, requiring one-two months before full activity becomes apparent. If more urgent glycemic control is necessary, concomitant use of another agent is recommended.³³

COMBINATION THERAPY

If, or when, monotherapy fails to adequately control blood glucose, then combination therapy is the next step. Now that there are four classes of agents available for use, each with a different mechanism of action, combining drugs can typically bring blood glucose under control. Which combination to use depends upon the patient characteristics. If secondary failure to sulfonylureas or metformin occurs, then just switching from one agent to the other is rarely successful. However, the combination of the two drugs together improved glycemic control in 60-70% of patients²⁶ and decreased the Hgb A_{1C} an average of 1.8%.²⁴ Sulfonylureas may also be used in combination with acarbose²⁹ or troglitazone. Addition of 600-mg troglitazone to glyburide decreased the Hgb A_{1C} 2.65% in a recent study.³³ Acarbose can also be used in combination with metformin and insulin; it is unclear at this time if the drug can be used with troglitazone. Patients taking acarbose should be cautioned to treat hypoglycemia with glucose, rather than a disaccharide. While there are no obvious contraindications for combination use of troglitazone and metformin, the efficacy of this combination is under study and has yet to be established.³³

ADDING INSULIN

Insulin is typically regarded as a therapy of last resort in treatment of type 2 diabetes. Theoretically, one should be able to control even the most refractory hyperglycemia with insulin. However, the majority of patients treated with insulin in a recently published study, achieved suboptimal glycemic control.³⁶ Although this study was conducted prior to the release of newer anti-hyperglycemic agents, a disturbing proportion of

patients remains suboptimally controlled. Insulin may be avoided by some practitioners due to concerns about hypoglycemia, weight gain, risk of vascular disease, as well as patient resistance. While the risk of hypoglycemia with use of insulin is higher than that seen with oral agents, the risks of persistent hyperglycemia are even more significant. Insulin can be used in combination with sulfonylureas, metformin, acarbose, and troglitazone, or can be used alone in a single bedtime dose of intermediate acting insulin. Conventional split-mixed insulin regimens can be used as can intensive insulin therapy in selected patients.^{37,38} Initiation of a single bedtime dose of an intermediate acting insulin in conjunction with an oral agent may yield improved fasting glucose values and reduced glucose toxicity, while allowing the patient to become accustomed to insulin therapy. Whereas newer insulin pen devices may improve patient acceptance of insulin therapy, they also increase the cost of therapy. Bedtime therapy with NPH should be started at 10 units, then increased by three-four unit increments, every three to five days until adequate control of fasting glucose levels is achieved.^{17,37} Insulin therapy should be employed in type 2 diabetes during periods of acute illness if metabolic decompensation occurs, in renal or hepatic insufficiency, during pregnancy, in the setting of severe hypertriglyceridemia (> 1000 mg/dl) related to poor glycemic control, and when therapy with oral agents fails to yield adequate glycemic control. For patients with unstable coronary or cerebrovascular disease, or for those with underlying autonomic neuropathy, insulin should be used with caution, and goals for glycemic control should be modified.

SUMMARY

To review appropriate use of drug therapy, lean type 2 diabetics, in whom the major defect is presumed secondary to β -cell insufficiency, may benefit most from initiation of sulfonylurea therapy. Obese type 2 diabetics with high fasting glucose and dyslipidemia, are excellent candidates for monotherapy with metformin, and if necessary, NPH insulin at bedtime. Patients with elevated postprandial glucose levels may achieve best results with acarbose. Addition of troglitazone may allow for reduced doses of other oral agents and insulin, and can also be helpful if there is co-existing mixed dyslipidemia (see Table I). If primary drug failure occurs (in the absence of absolute insulin deficiency or acute illness), other agents should be added to, rather than substituted for the initial therapy. Insulin should be utilized

when adequate metabolic control cannot otherwise be achieved and maintained.

In summary, we now have the tools to control hyperglycemia in the majority of patients with type 2 diabetes. Therapy for type 2 diabetes should include a program of diet, exercise and weight loss when appropriate. Oral antihyperglycemic agents, individualized for the patient's status (weight, lipid profile, likelihood of compliance) should be used alone or in combination when diet and exercise fail. Finally, insulin should be added when necessary for the achievement of adequate metabolic control, with the aim of reducing morbidity and mortality from complications of diabetes.

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Costs of Care for Diabetes in Wisconsin Hospitals and Ambulatory Surgery Centers in 1996

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ABSTRACT

Diabetes mellitus imposes a significant financial burden on Wisconsin's health care system. One portion of this burden is attributable to the cost of hospitalizing diabetes patients. During 1996 hospital inpatients with a principal diagnosis of diabetes generated over \$60 million in hospital charges (physician fees excluded). Ambulatory surgery patients generated an additional \$3.4 million in facility charges. This article examines those costs, according to age and gender, expected pay source, and by county. It also reports the reasons for hospitalization and ambulatory surgery for patients whose principal diagnosis was diabetes.

Employers, public health professionals, physicians and managed care firms are interested in containing the social and personal costs of diabetes mellitus. This paper explores the financial burden associated with hospitalization and ambulatory surgeries for diabetes in Wisconsin for 1996.

METHODS

Hospitals, hospital outpatient surgery centers, and Medicare-certified free-standing ambulatory surgery centers (FASC) in Wisconsin must report their discharge data to the Office of Health Care Information on a quarterly basis. After extensive editing, these quarterly discharge files are produced for distribution. For this analysis the Office of Health Care Information used the quarterly hospital inpatient discharge data files and the quarterly ambulatory surgery data, both for the first

through fourth quarters of 1996. We first retrieved all discharges or ambulatory surgeries at Wisconsin facilities where diabetes was the principal diagnosis, irrespective of patient residence. Using the patient residence as the unit of analysis, we also performed a county-by-county analysis of the costs.

We confined our analysis and reporting to those cases with diabetes mellitus as the principal diagnosis, although admittedly, diabetes might significantly influence the costs of care for other conditions. Because of the difficulty in attributing these latter costs, we chose not to report them. For purposes of reporting, we divided diabetics into two age groups (<35 years and ≥ 35 years) and determined the expected payment sources for diabetes, and the reasons for inpatient hospitalizations where diabetes was the principal diagnosis. We also determined the procedures performed in both hospitals and FASCs in patients in whom diabetes was the principal diagnosis.

RESULTS

A total of 6,597 inpatients whose principal diagnosis was diabetes mellitus were discharged from Wisconsin hospitals during 1996 (Table 1). These patients received 38,470 days of care and generated \$60.3 million in hospital charges (excluding physician fees). The average length of stay was 5.8 days and the average charge \$9,138. Outpatient surgical procedures performed on 2,622 patients (whose principal diagnosis was diabetes) in hospitals and FASCs generated an additional \$3.4 million in charges.

Almost 52% of inpatients were men. However, women constituted about 52% of the patients among those below 35 years of age. The average age for the entire group was 53 years. Among those under 35 men averaged 22 years while women averaged 21; women over 35 were three years older than men (64 vs. 61 years).

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Table 1. Inpatient Utilization and Charges where Diabetes was the Principal Diagnosis, Wisconsin Hospitals, 1996 *

		Number of cases	Percent of cases	Average charge (\$)	Average LOS (days)	Total Charges (\$)	Average Age
Age <35	Men	705	48.2	5,583	3.2	3,936,339	22.1
	Women	759	51.8	5,796	3.7	4,393,423	21.1
	Total	1,464		5,694	3.5	8,329,762	21.6
Age ≥35	Men	2,706	52.7	10,550	6.6	28,549,141	60.8
	Women	2,427	47.3	9,639	6.4	23,393,747	64.1
	Total	5,133		10,119	6.5	51,942,888	62.4
All Men		3,411	51.7	9,524	5.9	32,485,480	52.8
All Women		3,186	48.3	8,724	5.8	27,787,170	53.8
Total Cases		6,597		9,138	5.8	60,272,650	53.3

* Source: Office of Health Care Information, Inpatient Data

Table 2. Expected Pay Source Distribution where Diabetes was the Principal Diagnosis, Wisconsin Hospitals, 1996 *

Pay Source	Number of Cases	Average Charge (\$)	Total Charges (\$)	Percent of Cases	
				Diabetes inpatients	All inpatients**
Medicare	3,060	10,688	32,705,245	46.4	46.9
Medical Assistance	690	7,588	5,235,673	10.5	8.2
Other Government	206	7,062	1,454,692	3.1	2.2
Commercial Insurance	2,268	8,035	18,215,114	34.4	38.2
Self-Pay	351	6,397	2,245,304	15.3	4.1
Unknown	22	18,937	416,622	0.3	0.3

* Source: Office of Health Care Information, Inpatient Data ** (less birth-related)

After removing birth-related hospitalizations from the calculations, the expected pay source for diabetes inpatients was very similar to that for all inpatients (Table 2).

Fifty-five percent of diabetes inpatients were assigned to diabetes DRGs (294 and 295). Table 3 shows the most common DRG assignments for the group.

Approximately 78% of patients undergoing ambulatory surgery whose principal diagnosis was diabetes had eye procedures performed, mostly removal of chorioretinal lesions. Of the total cases, FASCs reported 602; ICD-9-CM code 14.25 was listed in 543 of these (see table) as the principal procedure.

DISCUSSION

Even if one considered only hospitalizations and surgeries, the burden of diabetes, with a total yearly cost of \$63.7 million, is quite significant for a state the size of Wisconsin with an estimated

population of 5.1 million. The actual costs are even higher, since we were unable to measure the total costs of care for this condition. Unfortunately acquiring other measures of the cost of care is difficult, as is attributing costs to diabetes alone. An even more stark picture would emerge if one were to examine the deaths, disability measures, and employment-related measures attributable to diabetes.

More importantly, this information also offers a perspective on the human suffering associated with the serious and debilitating nature of this disease. More effective management of this condition will reduce both personal suffering and the economic burden. Collaborative efforts between physicians, other health care professionals, employers, health plans, and public health professionals are needed to effectively address the multifaceted social, nutritional, and medical needs related to diabetes.

Table 3. Reasons for Inpatient Hospitalization where Diabetes was the Principal Diagnosis, Wisconsin Hospitals, 1996

DRG	Number of Cases
294 Diabetes Age >35	2,343
295 Diabetes Age 0-35	1,314
018 Cranial and Peripheral Nerve Disorders with CC	414
113 Amputation for Circulatory System Disorders except Upper Limb and Toe	401
331 Other Kidney and Urinary Tract Diagnoses Age >17 with CC	263
285 Amputation of Lower Limb for Endocrine, Nutritional, and Metabolic Disorders	227
130 Peripheral Vascular Disorders with CC	190
114 Upper Limb and Toe Amputation for Circulatory System Disorders	177
287 Skin Grafts and Wound debridement for Endocrine, Nutritional and Metabolic Disorders	175
019 Cranial and Peripheral Nerve Disorders without CC	174
478 Other Vascular Procedures with CC	149
007 Peripheral and Cranial Nerve and other Nervous System Procedures with CC	139
302 Kidney Transplant	102
All Other	529

Source: Office of Health Care Information, Inpatient Data

Table 4. Reasons for Ambulatory Surgery where Diabetes was the Principal Diagnosis, Wisconsin Hospitals and FASCS, 1996

ICD-9-CM Procedure Code	Number of Cases	Average Charge (\$)	Total Charges (\$)
14.24 Destruction of Chorioretinal Lesion by Laser	1,107	355	393,069
14.25 Destruction of Chorioretinal Lesion by Photocoagulation of Unspecified Type	550	232	127,640
14.74 Other Mechanical Vitrectomy	121	4,595	555,940
39.27 Arteriovenostomy for Renal Dialysis	91	3,460	314,858
84.11 Amputation of Toe	88	1,985	174,701
14.49 Other Scleral Buckling	67	5,725	383,583
86.22 Excisional Debridement of Wound, Infection, or Burn	53	1,087	57,587
14.34 Repair of Retinal Tear by Laser Photocoagulation	43	690	29,684
13.41 Phacoemulsification and Aspiration of Cataract	32	3,737	119,592
55.23 Closed (Percutaneous) (Needle) Biopsy of Kidney	31	1,994	61,824
54.93 Creation of Cutaneoperitoneal Fistula	20	2,873	57,453
14.73 Mechanical Vitrectomy by anterior approach	17	8,147	138,505
86.28 Nonexcisional Debridement of Wound, Infection, or Burn	17	226	3,835
38.95 Venous Catheterization for Renal Dialysis	17	2,435	41,392
14.72 Other Removal of Vitreous	16	7,856	125,690
14.29 Other Destruction of Chorioretinal Lesion	15	5,717	85,751
All other procedures	337	5,712	708,302
Totals	2,622		\$3,379,406

Source: Office of Health Care Information, Ambulatory Surgery Data

Continues on p. 61

Age- and Gender-adjusted Comparison of Wisconsin Native Mortality with General Wisconsin Population, for Diabetes and Diabetes-related Causes of Death — 1986-1995

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ABSTRACT

To compare mortality for diabetes and diabetes-related causes in Native American (NA) with total mortality for Wisconsin population by age, and gender.

METHODS

Adjusting for age and sex, standardized mortality ratios (SMRs) were calculated for Wisconsin Native Americans for 1986-1995, using the 1990 total Wisconsin population as a reference and death certificate data to count and categorize deaths.

RESULTS

Statistically significant high NA SMRs were found for total deaths (SMR = 1.28, $p < .005$), diabetes (SMR = 2.87, $p < .005$), heart disease (SMR = 1.16, $p < .005$), and kidney disease (SMR = 2.72, $p < .005$). There was substantial concordance in SMRs between men and women. NA SMRs were above 1 for all five year age groups below 75. Comparisons are provided with national data.

CONCLUSION

Mortality due to diabetes mellitus, heart disease and kidney disease are higher among Native Americans in Wisconsin for all age groups below 75 and in both genders.

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Current emphasis on environmental justice by several federal agencies necessitates the evaluation of health status of minority populations. In general, Native Americans (NAs) residing in the US, compared to all other races in the US, have been reported to have higher death rates from many causes, including tuberculosis, alcoholism, accidents, diabetes mellitus, homicide, pneumonia/influenza, and suicide, according to the US Public Health Service.¹ That report notes an age-adjusted overall death rate among US NAs which was 12% higher than the general US population in 1989-91. To date, most of this work has focused on chemical contamination of Great Lakes and Wisconsin inland lake fish,^{2,4} and the possible effects on the NA who eat them.^{5,7}

The mortality among NAs is subject to significant regional variations. Between 1989 and 1991, the age-adjusted death rate for NAs in the Minnesota-Wisconsin-Michigan region was 35% greater than that for all other areas in the US served by the Indian Health Service.⁸ This paper will examine the age- and gender-adjusted mortality among Wisconsin NAs, particularly with respect to diabetes, heart disease, and kidney disease, as part of an on-going overall evaluation of their health status by the Medical College of Wisconsin.

METHODS

Disease Categories

In order to assess the relative impact of diabetes mellitus on Native American mortality in Wisconsin, we considered not only deaths characterized by "diabetes" as the underlying causes, but also deaths due to heart disease and kidney disease, on the assumption that in many of these deaths diabetes may be an underlying or under-reported

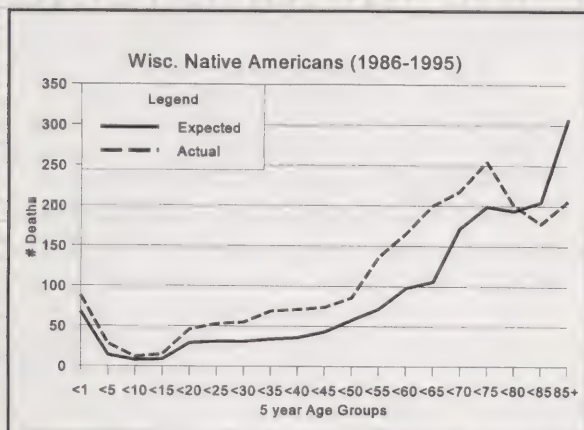


Figure 1. Expected vs. Actual Deaths by Age

factor. We used the following ICD-9 codes for each respective category: Diabetes - 250; Heart Disease - 391-398; 402; 404-429; Nephritis and Nephrosis - 580-589.

Calculation of Age- and Gender-Adjusted Expected Death Rates

The total Wisconsin population was used as the comparison population. Annual death rates were calculated for 38 age-sex groups from 1986 through 1995, using the number of total deaths for each disease category specified in the ten Wisconsin Vital Statistics reports⁹ corresponding to those years and the 1990 Wisconsin census.¹⁰ The 19 age groups were 0 (prior to first birthday), 1-4, 5-9, 10-14, etc., continuing in 5-year increments, with 85+ as the last category. Expected death rates for the NA population was then calculated by applying the Wisconsin death rate for each of the 38 age-sex groups to the respective population, according to 1990 census, and then adding the number of expected deaths in each of those 38 groups. Standardized mortality ratios were then calculated by dividing the observed by the expected number of deaths.

Test for Statistical Significance

A chi square statistic was computed using the formula $\chi^2 = (O-E)^2/E$, where O = observed NA deaths, and E = age-sex-adjusted expected NA deaths. The other three cells of the 2x2 table (NA non-deaths, Wisconsin deaths, Wisconsin non-deaths) were ignored because these numbers are so large compared to NA deaths that their contribution to the chi square statistic is negligible.

RESULTS

There were 2,158 total deaths among age- and gender-adjusted Wisconsin NAs in 1986-95, compared to 1,714 expected deaths (ratio = 1.26, p

< .001). The very young age composition of Wisconsin's NA population is indicated by the fact that without age adjustment, there would have been more than twice as many expected NA deaths during this same time period.

Table 1 reveals high ratios of observed to expected NA deaths (hereafter referred to as NA standardized mortality ratio or NASMR) for all three causes of death considered in this study, and much concordance between NASMRs in men (M) and women (W). Significantly high NASMRs were found for diabetes (T,M,W), heart disease (T,M), kidney disease (T,M,W), and all deaths (T,M,W). Furthermore, the three selected diseases account for 178 of the 444 total excess (observed minus expected) deaths during 1986-95.

The standardized mortality ratio for native Americans by age groups is shown in Figure 1. This ratio is consistently above 1, ranging from 1.29 to 2.03 between infancy to age 64. A sharp and continuous decline in this ratio is apparent after age 65, declining below 1 for the first time after age 80 and to 0.67 beyond 85 years (85+).

DISCUSSION

Miscoding of the underlying cause of death on death certificates is a well known and common phenomenon, which is likely to have large effects on analyses such as these. However, this should not greatly influence the relationship between NA and other deaths by disease category unless there is a systematic bias operating which results in differential miscoding by race. We do not know if such a systematic bias does in fact exist. If it does, it would influence death rate comparisons by disease category, but not for total deaths.

Miscoding of race, on the other hand, could also result in inaccurate comparisons for total deaths. Under-reporting of NA race on death certificates has in fact been demonstrated in several areas in the US, and the complete extent of this under-reporting is not known.¹¹ To the extent that such under-reporting exists in Wisconsin, that would mean that the reported NASMRs would be under-estimates of the true NASMRs. Thus, the numerous reported NASMRs which are significantly greater than 1 would be even more significant.

Another source of under-estimation of the NASMRs in this report is the fact that the reference population used here to compare with the NA population was the total Wisconsin population, which included the NA population.

Table 1: Actual and Age-Adjusted Expected Deaths Among Native Americans in Wisconsin by Disease, Gender, and Cause (1986-1995)

Disease	Men Deaths	Ratio	Women Deaths	Ratio	All Excess	Ratio
Diabetes mellitus	35 (18)	1.99*	72 (20)	3.67*	69	2.87*
Heart disease	360 (294)	1.23*	239 (225)	1.06	80	1.16*
Kidney disease	17 (8)	2.14*	23 (7)	3.41*	25	2.72*
All three	412 (320)		334 (252)		174	
All deaths	1226 (958)	1.28*	920 (756)	1.22*	432	1.26*

(The number of expected deaths are shown in parentheses.): * = significantly >1 (p<0.05)

Table 2: Comparison of age-adjusted mortality ratio of Native Americans to total population mortality rates in Wisconsin and U.S. for selected diseases.

Disease	Wisconsin (1986-1995)	U.S. (1989-1991)
Diabetes Mellitus	2.87*	2.5
Heart Disease	1.16*	0.9
All Causes	1.26*	1.1

* = Significantly > 1 (p<.05)

However, this would have only a minor influence, since the NA population of Wisconsin accounts for less than 1% of the total. The inclusion of blacks (which account for 5.0% of Wisconsin's total population) in the reference population would be expected to decrease the NASMR compared to what it would be if the reference population was all white, since blacks have greater mortality rates than whites.¹¹

The census information, which is the basis for all death rate calculations, could also be a source of some error, since it spans a 10-year period. However, the 1990 census which was used is near to the mid-point of that 10-year period. From 1980 through 1990, the NA Wisconsin population increased by 32%, while the white Wisconsin population increased by 2.4%.^{9,12} The large increase in NA population could be a source of some error if the increase before 1990 was much different from that after 1990.

Comparison of ratios of NA to all-race death rates in other parts of the US may help place some of this data into a wider perspective. Where NASMRs (for a cause of death) are significantly above 1 in Wisconsin, a similar finding for

that cause for the US in general could be indicative of genetic influences or lifestyle or environmental factors which apply to US NAs in general. On the other hand, where NASMRs are significantly above 1 in Wisconsin but not elsewhere, environmental effects specific to Wisconsin might be suggested. Table 2 shows such comparisons for all diabetes, heart disease, and total deaths, as reported by the Indian Health Service (IHS) in 1994 (The IHS did not report this information for kidney disease in 1994).¹ Of the three causes of death described in Table 1 of this report, diabetes was also reported by the IHS as having very high observed to expected death ratios (2.5). Heart disease accounted for a large number of excess deaths in Wisconsin, but not in the IHS report, but the ratios were not too dissimilar (1.16 vs. 0.9).

As noted in the introduction, we considered heart disease and kidney disease deaths in this study along with deaths due to diabetes because diabetes is an important risk factor for heart disease,¹¹ and diabetic nephropathy is the foremost cause of end-stage renal disease in the US.¹⁴ Certainly, only a minority of heart disease deaths and kidney disease deaths are attributable to diabetes. However, it is possible that some of the excess mortality due to heart disease and kidney disease in Native Americans may be attributable to diabetes. To what extent this is actually the case in Wisconsin cannot be ascertained from this study.

Strict comparisons are not possible between the Wisconsin and US groups: There were slight differences in the age adjustment procedure; there was no adjustment for gender in the US comparison; and the time span was slightly different in the two reports. These different methodologies should not have made much difference in ratios, since the methodological differences were minor and the

gender distribution in Wisconsin and the rest of the US is similar.

It must be stressed that an NASMR for a cause of death of one or less than one does not rule out the possibility that the cause of death may have an NASMR of significantly greater than one for some NA sub-populations, or that there are some NA sub-populations which are exposed to environmental causes for that cause of death.

The low NASMRs above the age of 80, despite the consistently high NASMRs below age 65, may seem surprising, but this is similar to national data.⁶ It could be that NAs are exposed to a variety of environmental influences that selectively kill those who are perhaps more susceptible to death at the younger ages, leaving only the healthiest NAs by age 75, by which time the adverse environmental influences may have ceased.

In summary, Wisconsin Native Americans have relatively high age-adjusted death rates for many causes of death. This paper describes those findings but sheds little light on their causes. Targeted analytical epidemiological research will be required to follow up on these findings and identify those causes.

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Table 5. Ten counties with the highest and lowest total charges for inpatient and ambulatory surgery with diabetes as the principal diagnosis, 1996.

County	Inpatient Cases	Outpatient Cases	Total Cases	Inpatient Charges (\$)	Outpatient Charges (\$)	Total Charges (\$)
Highest						
Milwaukee	1792	595	2387	18,821,907	985,723	19,807,630
Waukesha	265	251	516	3,013,214	257,897	3,271,111
Dane	359	232	591	3,112,689	109,983	3,222,672
Racine	240	72	312	2,034,964	158,891	2,193,854
Kenosha	177	54	231	1,944,360	145,891	2,090,251
Brown	212	109	321	1,876,351	124,567	2,000,918
Rock	200	142	342	1,881,478	94,242	1,975,719
Sheboygan	126	70	196	1,018,610	93,519	1,112,129
La Crosse	137	9	146	1,032,368	25,521	1,057,889
Fond du Lac	122	44	166	977,006	73,040	1,050,046

Source: Office of Health Care Information, Inpatient and Ambulatory Surgery Data

Improving Diabetes Care for Medicare Beneficiaries in Outpatient Setting: Follow-up Report

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Kristine M. Miesbauer, RN; and Christine L. Halvorsen, MS*

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experience in engaging with issues presented are welcomed.

Abstract

MetaStar collaborated with a Wisconsin medical group on a quality improvement project with the common objective of improving diabetic care to Medicare beneficiaries. This project was funded under a HCFA contract with MetaStar. Seven quality health indicators were defined and objective data elements measured to calculate these indicators. Baseline data were collected, analyzed and shared with the medical group, which identified opportunities for improvement and instituted action plans to enhance diabetic care. The follow-up data showed improvement in all seven measures, with statistically significant improvement ($p < .05$) in four.

Introduction

MetaStar, the Wisconsin Peer Review Organization is one of the fifty-four Quality Improvement Organizations (QIOs) under contract with the Health Care Financing Administration (HCFA). Like the other QIOs, MetaStar works to safeguard Medicare beneficiaries in Wisconsin. HCFA's Health Care Quality Improvement Program (HCQIP) improves the quality of care of Medicare beneficiaries through projects aimed at particular clinical areas. In HCQIP there

have been national, regional and local projects. An example of a national project is the Cooperative Cardiovascular Project, in which MetaStar and the other QIOs have worked with acute care hospitals to improve care in acute myocardial infarction. An example of a regional project is the Congestive Heart Failure project, wherein MetaStar and a number of other Midwestern QIOs have worked with providers to improve treatment of CHF patients. The diabetes project described in this article is a local project, developed by MetaStar in cooperation with a Wisconsin multi-specialty medical group.

Under HCQIP, MetaStar determines clinical areas in which an evidence-based consensus exists as to what care is appropriate, but where care does not consistently follow that consensus. Through baseline measurement; partnerships with practitioners, providers, plans, and beneficiaries; collaborative intervention, and follow-up evaluation, MetaStar's works toward the goal of optimal health care for Wisconsin Medicare beneficiaries. A number of MetaStar's improvement projects, like the one discussed below, have moved Wisconsin health care closer toward that goal.

Over 15 million Americans have diabetes mellitus. Diabetes causes numerous systemic complications including blindness,

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Table 1. Diabetic Quality Health Indicators

Diabetes Indicator	Baseline	Follow-up	Statistical Significance*
Percent of patients with documentation of an annual dilated eye examination	30% (41/135)	32% (38/119)	NS
Percent of study patients not receiving an annual eye examination, with documentation that one was recommended to them	11% (8/72)	38% (20/53)	p = .001
Percent of study patients with documentation of an annual eye examination (with or without evidence of dilation)	47% (63/135)	56% (66/119)	NS
Percent of study patients with documentation of at least one foot exam	53% (71/135)	93% (111/119)	p = .001
Percent of study patients with documentation of at least one hemoglobin A1C test result	78% (105/135)	92% (110/119)	p = .001
Percent of study patients with documentation of at least two hemoglobin A1C test results annually	57% (77/135)	61% (73/119)	NS
Average patient hemoglobin A1C test result (average of patient averages)	8.23 (n=105)	7.42 (n=110)	p < .0001

*All comparisons were between baseline and follow-up. A chi-square test was used for all except the last indicator, for which, a t-test was used.

amputation, myocardial infarction, stroke, and renal failure. The prevalence of both diabetes and its complications increases with age.¹

About 8,000 new cases of blindness a year are caused by complications from diabetes. The current cost to the federal government alone including Social Security, welfare, Medicare and Medicaid payments, rehabilitation, tax loss and tax expenditures is in excess of \$14,000 a year for each blind patient. Federally funded studies show that detection and treatment of diabetic eye disease saves nearly \$250 million annually in federal budgetary costs.² If all Americans with diabetes received appropriate care, savings could exceed \$600 million annually. Individuals with diabetic retinopathy are 29 times more likely to be blind than non-diabetics. Fifty-six percent of the overall prevalence of legal blindness due to diabetic retinopathy is in people 65 years of age and older.³

Early detection and treatment of clinically significant diabetic retinopathy, which often may be asymptomatic, is key to reducing preventable blindness.

Photocoagulation when clinically indicated can reduce the rate of severe visual loss by 50%.^{4,5}

Patients at risk of visual loss from diabetic retinopathy can be identified and treated before the loss occurs. This identification can be made by careful examination of the ocular fundus through dilated pupil by ophthalmologists or optometrists. It is recommended that primary care providers refer diabetic patients for a routine dilated eye exam annually.⁶

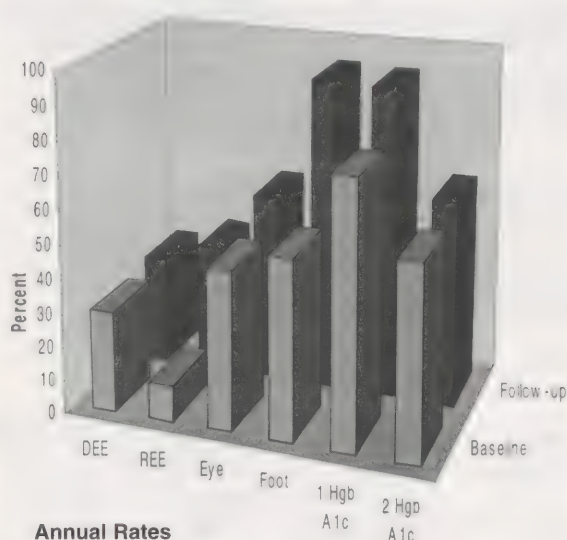
Over half of the lower limb amputations in the US occur in diabetics and were almost always preceded by a foot ulcer.⁷ The rate of diabetic foot ulcers and amputations increases with age.⁸ Foot exams by physicians have positive effects on decreasing amputations.⁹ Poor glycemic control is a risk factor for diabetic lower-extremity

amputation.¹⁰

Coronary heart disease in those with diabetes appears earlier, affects women and men almost equally and is more often fatal than in those without diabetes.¹¹ Some of this increased risk is independent of other diabetes-associated risk factors, i.e., obesity, hypertension, and dyslipidemia.¹² Heart disease increases with age in the non-diabetic population; with diabetes there is an accelerated increase with age.¹³ Improved glycemic control may reduce the excess risk of heart disease in diabetics.¹⁴

MetaStar initiated a pilot project with one volunteering large multi-specialty medical group. There are over 1700 diabetic patients who receive their primary care from this medical group. A diabetes work group (consisting of two primary care physicians, an endocrinologist, an ophthalmologist, a utilization review specialist, a certified diabetes educator nurse, a data analyst and the health

Figure 1. Diabetic Quality Health Indicators



Annual Rates

DED = Dilated Eye Exam

REE = Recommended For Eye Exam

Eye = Eye Exam

Foot = Foot Exam

1 Hgb A1c = At Least One Hgb A1c Test

2 Hgb A1c = At Least Two Hgb A1c Tests

education director) was established among staff and met monthly to discuss issues relating to care of the diabetic patients within the medical group. MetaStar's team - a nurse coordinator, a physician and a data analyst - met with this work group to discuss the project design and assist as needed throughout the project.

Measurable indicators were developed in partnership with this work group and were based on prevention guidelines published by the American Academy of Ophthalmology¹⁰ and recommendations from the American Diabetes Association in a position statement entitled Standards of Medical Care for Patients with Diabetes Mellitus.¹¹

Objectives

The specific objectives were to increase the following:

- 1) Proportion of patients with diabetes mellitus who received an annual dilated eye exam.

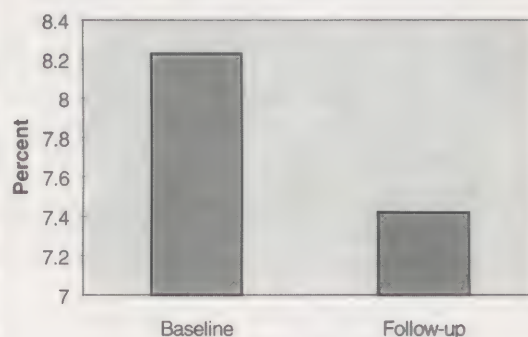
- 2) Proportion of patients with diabetes mellitus for whom their physician recommended a dilated eye exam.
- 3) Proportion of patients with diabetes mellitus who received an annual eye exam.
- 4) Proportion of patients with diabetes mellitus who received at least one foot exam per year.
- 5) Proportion of patients with diabetes mellitus who received at least one hemoglobin A1c test per year.
- 6) Proportion of patients with diabetes mellitus who received at least two hemoglobin A1c tests per year.
- 7) Average hemoglobin A1c test results for the population of patients with diabetes mellitus.

Methods

The project population consisted of all patients in the medical group who meet the following criteria:

- 1) Age 65 and over.
- 2) Must have been seen at least twice by the same primary care

Figure 2. Diabetic Quality Health Indicator
Average Population Hemoglobin A1c



provider during the study period with a diagnosis of diabetes (ICD-9 diagnosis codes 250-250.93 inclusive, plus 251.8).

- 3) Must have had a diagnosis code on the medical group system for diabetes prior to the study period.

One of the first steps in an HCQIP quality improvement project is to establish an opportunity for improvement by measurement of performance at baseline. Baseline performance was measured with data abstracted from a simple random sample of 135 records from all clinic charts meeting the inclusion criteria. Data abstracted included items about foot inspections, hemoglobin A1C blood tests and documented evidence of an annual dilated fundoscopic eye exam. In addition to measuring the proportion of patients with documentation of a dilated eye exam, we also noted whether the medical record mentioned "eye exam." While an eye exam that can detect retinopathy early enough to treat must be conducted with the pupil dilated, less than optimal documentation of the event could show only "eye exam."

The results of the baseline analysis were shared with the medical group's diabetic work group at a monthly meeting in February 1996. The work group designed and implemented interventions addressing each of the indicators. Included in these interventions were departmental educational presentations; establishment of diabetes guidelines with distribution to providers and patients; development and system-wide use of a diabetic management flow sheet; automatic referrals to health education of all newly diagnosed diabetics and of all hemoglobin A1C test results greater than nine percent; and display of foot posters which read, "If you have diabetes, take off your shoes and socks" in every primary care examining room.

The diabetes care practice guidelines which were established were simple and straightforward. The guidelines contained the following five items:

1. A Hgb A1C blood test be given at least every six months.
2. A dilated eye exam should be performed annually.
3. A physician should conduct an examination of bare feet at least annually. Patients should examine their feet on a regular basis.
4. All patients who are newly diagnosed with diabetes should be referred for Health Education and Nutrition counseling.
5. Patients with a Hgb A1C > 9.0 should be referred for Health Education and Nutrition counseling.

Follow-up data were abstracted after the interventions were completed from a second simple random sample of 119 records. The time frame for follow-up consisted of a complete year, since the indicators were defined as annual events, and began after implemen-

tation of the medical group's improvement plan.

The results of the follow-up analysis were shared with the medical group's diabetic work group at a monthly meeting in December 1997.

Data Collection Process/ Time Frames

The baseline sample was randomly selected from all patients who met the inclusion criteria. The follow-up sample was randomly selected from patients at the clinics that were associated with the medical group at the time of the baseline sample. The baseline and follow-up samples were independent but non-exclusive. Originally 150 records were selected at each time period, but failure to locate charts or subsequent review for inclusion criteria resulted in samples of 135 records at baseline and 119 records at follow-up. The baseline time frame was from January 1, 1994, through December 31, 1994. The follow-up time frame was from August 1, 1996, through July 31, 1997.

Results

The results for the seven quality health indicators are presented with statistical analyses comparing the baseline with the follow-up (Table 1). Graphical representations of the first six quality health indicators' results are shown in Figures 1.

The slight increase in the rate of dilated eye exams ('DEE' in Figure 1) from 30% to 32% was not statistically significant. The rate of recommendation for an eye exam for those who had not had an eye exam within one year ('REE' in Figure 1) increased significantly from 11% to 38%. The increase in the rate of an annual eye exam, whether dilated or not ('Eye' in Figure 1), from 47% to 56% was not statistically significant.

The rate of at least one foot

exam per year ('Foot' in Figure 1) increased significantly from 53% at baseline to 93% at follow-up.

There was a significant increase in the rate of those receiving at least one hemoglobin A1c test annually ('1 Hgb A1c' in Figure 1), from 78% to 92%. The increased rate of at least two hemoglobin A1c tests ('2 Hgb A1c' in Figure 1), from 57% to 61%, was not statistically significant. The mean population hemoglobin A1c level showed a significant decrease from 8.23% to 7.42% (Figure 2).

Discussion

The results show improvements in each of the seven quality health indicators related to the care of this medical group's elderly diabetic population. The interventions were done on a clinic-wide basis and therefore affected all of the diabetics regardless of payer.

The rate of documented annual eye exams for diabetics was essentially unchanged while the percentage of patients who received a recommendation for an eye exam increased significantly at the collaborating medical group. This may be due to staff changes within the group. The number of staff ophthalmologists at the group decreased from five at baseline to three at follow-up. During the same time frame the number of primary care providers increased.

The statistically significant increase in the percentage of older diabetic patients who received at least one foot exam per year was due to the emphasis placed on this quality health indicator by the medical group. The diabetic work group, primarily through the efforts of the health education department, put posters up in every primary care examining room. These posters have a drawing of a foot with the caption in large bold print reading, "If you

are diabetic, take off your shoes and socks." The group believes that the posters were instrumental in increasing the number of foot exams.

There was a statistically significant increase in the percentage of patients who had at least one hemoglobin A1C test performed during the year. The medical group was split on whether more than one hemoglobin A1C test per year is indicated in all type 2 diabetics, especially in patients who are well-controlled. This helps to explain the fact that there was little increase in the number of patients with two or more hemoglobin A1C tests annually.

The decrease in the average hemoglobin A1C test indicates better glycemic control in the medical group's elderly diabetic patient population. However, the increased testing may have artificially lowered the average hemoglobin A1C by including a larger number of lower test results from patients who under baseline patterns may not have been tested.

Overall the results of this project are most encouraging. These improvements in care may result in cost saving benefits to health plans¹⁶ but more important is that this project promotes a healthier diabetic population within a single community. The group felt that the success of this project was dependent on their physicians' willingness to change their behavior for the betterment of their patients. In an effort to improve care in other communities across Wisconsin, MetaStar is replicating this project and has recruited fifteen medical groups to work with us.

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DIABETES

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From the Office of General Counsel

Finally, HCFA Proposes Regulations Interpreting Stark II

by Alyce C. Katayama, JD, Quarles & Brady

Introduction

Just when you might have thought that the business of practicing medicine could not become any more complex, the Health Care Financing Administration (HCFA) has finally issued proposed regulations to implement the Stark II law. Although you have waited more than three years for these regulations to appear, you now have only until March 10, 1998 to comment before the regulations will begin moving down the home stretch to finalization.

For those who may not have the stomach to read this entire article, let me get to the two most important points immediately. First, comments may be submitted in the traditional way by sending an original and three copies to:

Health Care Financing Administration
Department of Health
and Human Services Attention:
HCFA-1809-P

P.O. Box 26688
Baltimore, MD 21207

Comments may also be submitted electronically to HCFA's e-mail address: hcfa1809p@hcfa.gov. There is no down side to submitting comments and no cost other than your time. You should feel obligated to submit comments concerning any aspect of the proposed rules which you believe interferes with your ability to provide good patient care in a situation which does not contain the potential for Medicare or

Medicaid program or patient abuse. HCFA has indicated that it will be receptive to and, indeed, is soliciting such comments.

Secondly, regardless of what you may have believed, or concluded after analysis, about your activities under the Stark law and prior interpretations, you will need to go back to square one with your advisors and review all arrangements which may have Stark law implications in light of these proposed regulations. The Stark II proposed regulations will have a broad impact on any individuals or entities which must contend with the self-referral prohibition. While the proposed regulations provide some helpful clarification, they also reflect some surprisingly expansive regulatory views which may raise new problems for physicians.

History of the Stark Law

To put the present proposal in context, a brief history of the Stark law is in order.¹ I use the term "Stark law" to refer generally to the self-referral prohibitions contained in Stark I and Stark II. The self-referral prohibition was originally enacted in 1989 to combat the perception in Congress (supported by some published studies) that physicians were more likely to refer their patients for clinical laboratory services if they owned an interest in the laboratory providing the services. The ban on referrals to such clinical laboratories was called Stark I.² Stark I, which became effective on January 1, 1992, prohibited physicians from referring Medicare beneficiaries for clinical laboratory services

to entities in which they or members of their immediate family had a financial interest. The law also prohibited those entities from submitting a claim for payment to the Medicare program for clinical laboratory services furnished pursuant to a "prohibited referral." The final rules under Stark I were published in August of 1995, more than three years after the effective date of that law.³

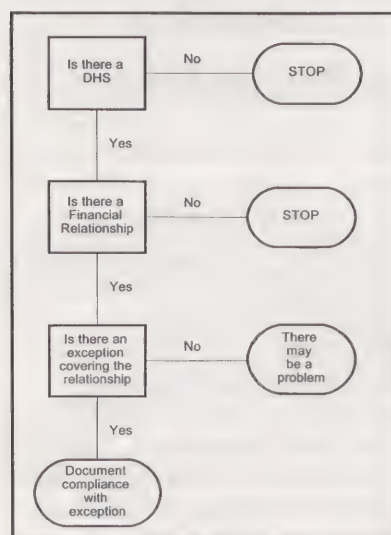
Congress found this basic concept so appealing that in 1993 the Stark law was amended to expand the self-referral ban to ten other health care services (the "Designated Health Services" or "DHSs") deemed to be similarly susceptible to overutilization based on a profit motive. These amendments were referred to as Stark II. The amendments also extended the ban to certain aspects of the Medicaid program as well.⁴ Stark II took effect on January 1, 1995. The additional DHSs were: physical therapy services, occupational therapy services, radiology services including MRI, CT and ultrasound; radiation therapy services and supplies; durable medical equipment and supplies, parenteral and enteral nutrients, equipment, and supplies, prosthetics orthotics and prosthetic devices and supplies, home health services, outpatient prescription drugs, and inpatient and outpatient hospital services.⁵

The basic analysis under the Stark law requires determining whether application of the law to a physician's activities causes a problem and, if so, whether there is an exception which might protect that activity. See Figures 1



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Fig. 1. Stark 101: An Ultrasimplified Analysis



and 2. The analysis is critically dependent on the definitions of the operative statutory terms -- and for those, regulatory guidance is sorely needed.

Discussion of Proposed Regulations

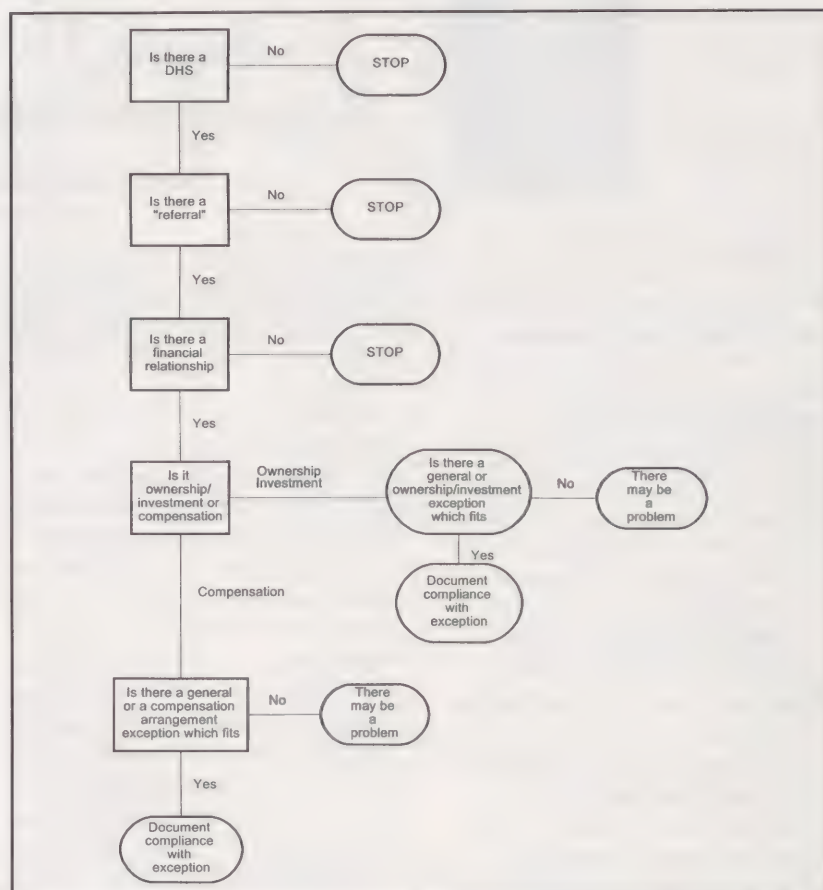
The Stark II proposed rule which was published on January 9, 1998 is based in significant part on the Stark I final rule. While the Stark I final rule is legally binding at this time, the Stark II proposed rule is not. The best approach at this time is to read the two sets of rules together and recognize that the Stark II rule does reflect the views of the regulators who are charged with enforcing the entire Stark law, even though it is not yet final.

Definitions

Designated Health Services

Any discussion of the regulations needs to begin with some of the key definitions. For the first time, HCFA has provided detailed definitions for each of the DHSs. The definitions themselves contain some surprises. Furthermore, in the commentary accompanying the definition, HCFA has intro-

Fig. 2. Stark 102: A Simplified Analysis



duced some new concepts which substantially broaden the impact of the Stark law.

Durable Medical Equipment

In general, the definitions for the DHSs are based on existing definitions in the Medicare program. For example, the DHS "physical therapy services" is defined for Stark law purposes to include speech-language pathology services, neuromuscular, musculoskeletal, cardiovascular and respiratory system testing and measurement as well as assessment and treatment related to dysfunctions caused by illness or injury and aimed at preventing or reducing disability or pain. These concepts come from already existing statutory and regulatory guidance on what outpatient physical therapy services Medicare will cover. These services are considered DHSs regardless of where they are furnished or by whom they are

furnished or how they are billed.

Radiology Services

There are other surprises in the expanded definition of the DHS, radiology service. By statute, this includes magnetic resonance imaging, computerized axial tomography scans, and ultrasound. Although radiation therapy services and supplies are a separately listed DHS, they are covered in the same preamble section.⁵ HCFA has done some remarkable things in the process of amplifying on the statutory language. For example, HCFA has decided that "screening mammography services cannot be subject to overutilization". HCFA bases this conclusion on the fact that the Medicare statute limits the frequency with which the Medicare program will cover these services and a covered level of service could never be an unnecessary service. Diagnostic mammography is another story.



HCFA is unwilling to assume that diagnostic mammography services, (described as mammography furnished to a symptomatic patient for the purpose of detecting breast disease) might also not be overutilized. Diagnostic mammography remains a DHS, while screening mammography is excluded from that definition. No doubt there are many other examples, among radiology services and among other DHSs, where a similar distinction could be made. However, none are made in the proposed regulations. Hopefully, similar distinctions in other areas will be brought to HCFA's attention in the comment process.

The biggest surprise in the definition of radiology services is the treatment of the physician's professional component of radiology services. Although Medicare has traditionally considered this a physician service rather than a radiology service, HCFA believes that it is appropriate for purposes of the Stark law to consider radiology services as including these physician services. HCFA proposes to treat the professional component of radiology services as part of the DHS because radiology always consists of a technical service combined with a physician's professional service. As HCFA states:

Whenever a technical radiological service is overutilized, it follows that a physician's radiological service will also be overutilized.⁶

What seems to be tacitly assumed in this shocking statement is that every referral prohibited by the Stark law represents overutilization of a DHS. There is no basis whatsoever in law or in fact for that assumption.

There is a small piece of good news in the discussion of radiology services. HCFA has decided to exclude from this DHS any "invasive radiology or interventional radiology services - procedures in which the imaging modality is

used to guide a needle, probe or catheter accurately". Examples of such service include percutaneous transluminal angioplasty, biopsies, arthrograms and myelograms. With these procedures, HCFA regards the radiology services as "merely incidental or secondary to another procedure that the physician has ordered." HCFA goes so far as to state:

It is our view that physicians do not routinely refer patients for . . . procedures . . . such as angioplasty, in order to profit from unnecessary radiology services.⁷

HCFA specifically solicits comments regarding other types of services that might appear to be DHSs but which may actually be incidental to other procedures. If you know of any examples, you owe it to the profession of medicine to send in a comment.

Prosthetics and Orthotics

Despite HCFA's generous admission that physicians would not subject patients to unnecessary invasive procedures in order to profit from unnecessary radiology services, HCFA assumes that physicians providing cataract surgery might be susceptible to improper motives when providing intraocular lenses, even though these lenses are an integral component of most such surgeries. Thus, HCFA has decided that it will deem intraocular lenses to be prosthetic devices.

It was argued to HCFA that intraocular lenses were a device implanted by a physician as part of a surgical procedure of which the device was but a small component, and that physicians would not unnecessarily subject patients to a surgical procedure simply to boost profits on intraocular lenses or other implantable devices. But HCFA rejected these notions. HCFA has also heard that it is not uncommon for physicians to receive compensation from companies that manufacture or supply

prosthetic devices, including intraocular lenses and that physicians may influence a hospital or ambulatory surgery center's choice of a prosthetic device. Although these practices might not lead to overutilization of services, HCFA believes they may drive up the cost of certain services that are not subject to a fee schedule (query whether the lack of a fee schedule should not be HCFA's problem rather than the physicians'). Since this is a form of potential Medicare program abuse and could even constitute patient abuse if a physician chose a prosthetic device based on financial rather than other considerations, HCFA has not excluded surgically implanted devices from the definition of prosthetic devices.

However, it should be noted that when intraocular lenses are implanted in an ASC, they are covered under the ASC all inclusive payment rate and therefore, in that situation HCFA does exclude these and any services covered under the ASC rate from the referral prohibition.⁸ HCFA has indicated that it will be receptive to comments about similar situations, i.e. situations where a rate structure eliminates or diminishes the impact of improper motives.



Financial Relationship

The concept of a financial relationship is also covered. HCFA has announced in this proposal that a financial relationship will include an indirect interest in an entity, no matter how many levels or layers away from a direct interest it may be.⁹ This expansion prevents physicians from evading the Stark prohibitions by establishing their ownership interests indirectly in holding companies.

Group Practice

The in-office ancillary services exception can be used by solo

practitioners as well as physician practices. However, in general, the Stark law prohibitions do not apply to DHSs which can be made to fit within the in-office ancillary services exception.¹⁰

In order to rely on the in-office ancillary exception, a physician practice must satisfy the Stark law's definition of a "Group Practice". In this proposal, HCFA has expanded on the statutory definition and on the definition contained in the final Stark I rules. On the plus side, a group can now include physicians who are individually incorporated as professional corporations whether they come together in a corporation, a partnership, or a limited liability company or partnership. However, a group cannot include a legal entity consisting of other legal entities any larger than individual professional service corporations.



Independent contractors are no longer to be considered as "members" of a Group Practice. This change has pluses and minuses. It will actually help groups qualify under the requirement that at least 75% of their members' overall time is actually spent in providing services to the group's patients. However, it means that independent contractors cannot qualify as the direct supervisors of non-physician employees of the group who may be providing the group's DHSs under the in-office ancillary exception.

One troubling aspect of the discussion of the group practice definition is that HCFA believes it excludes practices in which one physician holds 100% of the ownership interest and a number of other physicians are employed. It may be possible for the employment relationships in such a group practice to qualify under the bona fide employee exception, discussed below and for the owner to qualify for the in-office ancillary service exception, also discussed

below, for services he personally performs or supervises. However, the physician owner of such a practice may still have a problem referring Medicare or Medicaid patients for DHSs to the employed physicians if he cannot bring the activity into one of the ownership exceptions. This is another area where HCFA needs to receive comments orienting it to the real world. This appears to be an unwarranted narrowing of the statutory definition of a group practice as a group of two or more physicians legally organized as a professional corporation, partnership, etc.¹¹ Just because one physician is the owner and the other one or more physicians are employees does not mean that there is not a group of two or more physicians legally organized.

HCFA remains opposed to the notion that a "clinic without walls" constitutes a group practice. Instead, it is looking for real financial integration -- an overhead expense and income distribution method which indicates "centralized decision making, a pooling of expenses and revenues, and a distribution system that is not based on each satellite office operating as if it were a separate enterprise."¹² HCFA also takes a dim view of any narrow pooling of revenues and profits, for example, by specialty or sub-specialty.

It is still true that the profit derived by the group from the provision of DHSs covered by the in-office ancillary exception may be distributed to the group's members. However, a physician member of the group may not directly receive productivity bonus credit based on any DHSs provided to patients referred by that physician even if that physician himself or herself has personally performed or directly supervised those DHSs.¹³

Referral

The preamble to the proposed regulations also discusses at length

what constitutes a "referral" for purposes of the Stark law. Referrals include a request for an item or service for which payment may be made under Medicare Part B. A request for consultation with another physician and any tests or procedures ordered by or to be performed by or under the supervision of that other physician. A referral, under the statute, also includes the establishment of a plan of care by a physician when that plan of care includes the provision of a DHS.¹⁴

HCFA now believes that the concept of a "referral" covers situations in which physicians refer to themselves or among themselves within a group practice. HCFA believes that a physician has made a referral under the Stark law whenever the physician requests a DHS or establishes a plan of care that includes a DHS even if the physician personally furnishes the DHS.¹⁵ A referral for a consultation under the Stark law occurs whenever the referring physician retains control over the care of the patient, including care related to the condition that prompted the consultation. If a specialist takes over the patient's care for purposes of the condition that prompted the referral, this was not a "referral" in the Stark law sense of that term.

Exceptions to the Stark II Prohibitions

Once a Stark law concern has been identified, the analysis shifts to the question of whether any one or more of the extensive exceptions provided in the law applies to the situation in question. There are three categories of exceptions: those that apply to both ownership interests and compensation arrangements; those that apply only to ownership interests; and those that apply only to compensation arrangements. It is beyond the scope of this article to detail all of these exceptions. The most commonly encountered exceptions will be discussed.

In-Office Ancillary Service Exception

Among the exceptions which can cover both an ownership interest or a compensation arrangement, the most important is the in-office ancillary service exception. If a DHS (other than most durable medical equipment and parenteral/enteral nutrients, equipment and supplies) is provided in a manner consistent with this exception, the referral is not a prohibited referral. Two kinds of durable medical equipment are given special consideration may come within the in-office ancillary exception. The first, based on the statute, is infusion pumps. The second, added in the 1998 proposal, is crutches. Surprisingly, however, HCFA permits crutches to come within this exception only when the group practice providing them does not profit from their provision.

In the Q&A section of the preamble, HCFA discusses this concept, noting that it might be a serious inconvenience to patients if physicians were prohibited from providing crutches after setting a broken leg in the office. HCFA relies on the authority given to the Secretary of Health and Human Services (the Secretary) in the statute to create new exceptions for financial relationships that do not pose a risk of program or patient abuse.¹⁶ Unfortunately, HCFA finds that is has "no evidence that allowing physicians a blanket exception to self refer for crutches will be free from abuse". Thus, HCFA feels compelled to conclude that an exception for crutches can only be created if the physician can realize no direct or indirect profit from furnishing the crutches.¹⁷ I wonder how many other needed patient care services HCFA could decide to permit, as long as it can, by rule, remove all possibility of profit. The need to find evidence of a total absence of potential for abuse is not what I thought Congress had in mind when it gave the Secretary some

discretion in applying the Stark law.

There are a number of conditions which must be met in order to qualify for the in-office ancillary service exception, some of which are discussed here. Services must be furnished personally by either the referring physician, another physician in the same group, or another individual directly supervised by the referring physician or a member of the group. The direct supervision requirement has been clarified to indicate that the physician must be in the same "office suite" and must also be "immediately available" to provide assistance and direction when the services are furnished, although the supervising physician may occasionally be absent for brief and unexpected periods, such as emergency consultations, or short, routine absences, such as for lunch. The office suite requirement typically refers to contiguous rooms, but could also include rooms on adjoining floors as in a townhouse type office.¹⁸

The site of delivery of DHSs striving to meet the in-office ancillary exception is also critical. The DHS must be furnished in the same building where the referring physician or group furnishes unrelated physicians services or in a building used by the group for some or all of their clinical lab services or in a building used by the group for the centralized provision of their DHSs. If a mobile imaging van is pulled into the garage of a building and services are then furnished in the van, HCFA does not regard that service as being provided in a part of the building in which the physician is practicing.¹⁹ Services provided outside of an office, such as home health services, can never satisfy this exception.²⁰

Composite Rate Exception

The Stark I final rule created an additional general exception, sometimes referred to as the

"composite rate" exception for DHSs furnished in ambulatory surgery center (ASC), End Stage Renal Disease (ESRD) facility or a hospice, provided of course that the services are included within the composite rate. Since the concept here is that since the rate will not vary in response to the services delivered, there is no potential for abuse. The Stark II proposal expands this exception to allow HHS to except additional services furnished under any other special payment rates where it is determined that there is no incentive for underutilization or overutilization. HCFA is specifically soliciting comments concerning the existence of analogous composite rates under the Medicaid Program.²¹

Exceptions Available Only for Ownership or Investment Interests

There are two exceptions related only to ownership or investment interests: one for publicly traded securities and mutual funds and the other for ownership in certain specific providers such as hospitals located in Puerto Rico and entire hospitals and rural providers meeting certain conditions. The proposed rule does not make dramatic changes in this area.



Exceptions Applicable Only to Compensation Arrangements

The proposed Stark II rules add three significant new exceptions to the already substantial list of compensation arrangement exceptions. The three new exceptions deal with discounts, de minimis compensation and fair market value compensation. The most important of these is the fair market value exception. This proposal is based on a recognition that the previously promulgated exceptions do not cover some common compensation arrangements which may be commercially reasonable, based on fair market value, and not tied to the volume or value of

referrals for DHSs.

A compensation arrangement between a physician and an entity will satisfy this exception if the arrangement:

1. Is reflected in a written agreement covering identifiable items or services;
2. Covers all of the items or services provided by the physician to the entity or cross-references any other agreements between the parties [no doubt to make the job of investigators a little easier];
3. Specifies a time frame, which can be for less than a year;
4. Specifies in advance the compensation for the arrangement, consistent with fair market value and not based on volume or value of referrals;
5. Involves a transaction that is commercially reasonable and furthers the parties' legitimate business purposes; and
6. Does not violate the anti-kickback statute.²²

The proposal also contains a new exception for discounts when they are passed on in full to the patient or the patient's insurer and do not benefit the referring physician. One interesting aspect of this new exception is that the reference to passing the discount on to "the patient or the patient's insurer (including Medicare)". This seems like a unwarranted extension of a statute that deals only with services for which a claim may be presented to Medicare or Medicaid.²³

There is also an exception proposed for de minimis compensation, in the form of items or services (not including cash). The

concept extends to items or services not exceeding fifty dollars per gift or an aggregate of three hundred dollars per year. The entity providing this de minimis compensation must make it available to all similarly situated individuals "regardless of whether these individuals refer patients to the entity for services". The claimed de minimis compensation may not be determined based on the volume or value of the physician's referrals to the entity for a DHS.

The old familiar exceptions, such as those for rental of office space, rental of equipment, and bona fide employment relationships are still alive. The proposal adds some new wrinkles. In connection with equipment rentals, HCFA seems to be saying that it has concluded that there is no inherent problem with rental arrangements which are based on the number of times a piece of equipment is actually used, rather than on a daily, monthly or yearly basis. This is sometimes referred to as a "per click" arrangement. The situations I usually encounter where a per click exception could be helpful involve a physician who desires to rent a piece of equipment and supervise its use on a per use or per click basis. Unfortunately, HCFA's discussion of this subject covers:

"situations in which a physician rents equipment to an entity that furnishes a DHS, such as a hospital that rents an MRI machine with the physician receiving rental payments on a per click basis".²⁴

The discussion seems backwards. This is another aspect of the proposal where comments are urgently needed so that HCFA will understand that these arrangements generally operate in the other direction.

The bona fide employment relationship exception is also continued. However, some of the

"clarifications" provided in this proposal make this exception more complex than previously thought -- for example, payment of productivity bonuses to employed physicians (including those with respect to services they personally perform) has become more difficult. There now appears to be less flexibility in structuring compensation under the bona fide employment exception than in the context of a group practice.²⁵

Reporting Requirements

The proposed rule would modify reporting requirements in the current rule to reflect that even financial relationships which are thought to fall within an exception under the Stark law must be reported. This is to prevent entities from determining on their own that their relationships qualify for an exception and thus are not reportable.²⁶ The Stark I final rule indicated that this information was to be collected within 30 days after request by the intermediary or carrier. To date no requests have been issued. Rather than requiring updates within 60 days of a change in information previously submitted, the proposed rule would require all entities to report once a year on all changes.²⁷ HCFA recognizes that the reporting requirements may be overwhelming and in some cases impossible to fulfill.

"A publicly traded corporation with thousands of stockholders may find it extremely difficult to identify all of its owners and their relatives, and to identify which of these owners and relatives are physicians."

HCFA solicits comments in this area.

Sanctions

If the Stark law and its implementing regulations are violated, various sanctions are possible including: denial of payment; required refund of payment; imposi-



tion of a \$15,000 per service civil monetary penalty; and imposition of a civil monetary penalty of \$100,000 for "circumvention schemes". Interestingly, however, the Stark II proposed rule indicates that the federal government would not apply the Stark II law to physicians referring Medicaid patients for DHSs in a manner violative of the Stark law.

However, states are free to impose their own sanctions in these situations if there is a corresponding state law. Before you take comfort from this language in the preamble, I should point out that Wisconsin does have a corresponding state law,²⁸ based substantially on the federal law. Thus, although the federal government would only deny payment to the state for the federal share of Medicaid monies used for these services, the state itself may impose a full panoply of its own sanctions under state law.²⁹

Advisory Opinions

Given all the confusion generated in this proposal, no doubt business will be brisk in the advisory opinion market. On January 9, 1998, HCFA promulgated final regulations implementing an advisory opinion for Stark law issues.³⁰ At a minimum cost of \$250 and a rate of \$75 per hour, requestors can obtain an opinion involving either an existing arrangement or one which they are seriously contemplating. Anyone considering making such a request should carefully reflect on both the upside and the downside of this process. For example, although HCFA promises a 90-day turnaround, HCFA will routinely exchange information on requests with the Office of Inspector General. Also, while the opinion is generally binding on the government and the requesting party, the government is not totally prevented from commencing an action against a party if, for example, the requestor failed to disclose

certain facts in his request for an opinion.

References

1. 42 U.S.C. 1395nn.
2. 60 Fed. Reg. 41923 (1995). A detailed discussion of the Stark I final rules may be found in Barratt, K. and Katayama, A.: Stark self-referral rules burdened with complexities. *Wis. Med. J.* 1995: 697-701.
3. See Katayama, A. C. and Lyons, L.A.: Stark Realities: Coping with federal and state self-referral paranoia, *Wis. Med. J.* 1994: 631-636 for a detailed summary of the Stark II legislation.
4. 42 U.S.C. § 1396b.
5. 63 Fed. Reg. 1675-1677.
6. 63 Fed. Reg. at 1676.
7. 63 Fed. Reg. at 1676.
8. See exception created in proposed 42 CFR § 411.355(d).
9. 63 Fed. Reg. at 1686.
10. The statutory requirements for this exception are outlined in the article cited in note 3 above.
11. 42 U.S.C. § 1395 nn (h)(4)(A).
12. 63 Fed. Reg. at 1690.
13. 63 Fed. Reg. at 1691.
14. 42 U.S.C. § 1395 nn(h)(5)(B).
15. 63 Fed. Reg. at 1692. Proposed CFR § 411.351.
16. 42 U.S.C. § 1395 nn (b)(4).
17. 63 Fed. Reg. at 1711, proposed 42 CFR § 411.355 (b)(4).
18. 63 Fed. Reg. at 1684-1685.
19. 63 Fed. Reg. at 1695.
20. 63 Fed. Reg. at 1696.
21. 63 Fed. Reg. at 1666.
22. Proposed 42 CFR § 431.357 (l).
23. Proposed 42 CFR § 411.357 (j).
24. 63 Fed. Reg. at 17174.
25. 63 Fed. Reg. at 1700-1701, 42 CFR § 411.357 (c).
26. 63 Fed. Reg. at 1703, 1726. Proposed 42 CFR § 411.361.
27. 63 Fed. Reg. at 1726.
28. Wis. Stat. § 49.45 (L).
29. 63 Fed. Reg. at 1704.
30. 63 Fed. Reg. at 1646 et seq.



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Technology Today

Year 2000: Not Just a Problem for Computer Nerds

by Doug Turecek, Chief Information Officer

It would be difficult to ignore the recent media attention given to the issue referred to as "the Year 2000 problem." For several years, the computer industry media has been issuing the wake-up call. It would be very easy to dismiss the whole discussion as a computer nerd's problem, but when you see what's behind all of the fuss, you quickly gain an appreciation for the fact that this single event, changing the calendar from 1999 to 2000, will affect all of our daily lives to some degree.



One of the biggest myths about this issue is that it is often described as a bug. A bug is considered an error in logic or programming that causes a computer program to malfunction or to produce incorrect results. The Year 2000 problem is not a bug. Back in the 1960s and 1970s, when most of the large, legacy mainframe applications were developed, hardware was very expensive. The best programmers were the ones who could produce software that required the least amount of hardware resources, such as disk storage and memory. One way to do this was to save two bytes per date field by not storing the *obvious* century digits.

Now, fast-forward to today and your new platinum credit card shows up in the mail with an expiration date of 04/01. Your credit card company sees the card as

good through April of 2001, but when you go to the furniture store to purchase that new recliner, your card is rejected because the verification service uses legacy software that thinks your credit card expired ninety-seven years ago. No one expected these systems to last three decades or more and so at the time, it was an intelligent, fiscally-responsible decision to shave the extra digits. Over the years, those systems have grown in complexity through heavy customization and enhancement, making them difficult to replace or modify, and so we continue to rely on them today.

Every piece of technology that utilizes dates and does not store the century digits is at risk. Just pick an industry and the consequences of not resolving the problem are extensive:

Health Care

- Inventory systems miscalculate supply levels.
- Patient payment schedules appear to be overdue or overpaid.
- Reimbursement payments are delayed because the payer's system denies a claim for a treatment that appears to have taken place in 1900.

Financial

- Asset depreciation schedules that calculate that an asset was fully depreciated in 1904 rather than having six years remaining.
- Loans which now appear to be in default by 90 years, but are

not actually due until 2008.

Insurance

- Claims can't be processed because the policy appears to have expired.
- Annual policy renewals on April 1, 1999, can't occur because the system calculates an expiration date of March 31, 1900.

Do you serve on the board of directors for any organizations that might get sued by share-holders for not being prepared? Do you have significant investments in companies which will see plummeting stock prices because they had to plunge profits back into their Year 2000 projects or because they weren't prepared and manufacturing problems prevented them from having products to sell?

One of the other significant myths about this issue is that the extent of the impact is some sort of a surprise.

At the SMS, we have been evolving toward full Year 2000 compliance for many years. To ensure that all aspects of our technology assets are evaluated, we developed a comprehensive list of all technology, software and hardware, that utilize dates at some level. All systems that are acquired as new or replacement systems, must be in compliance. Any system that is not due to be replaced, is being updated within

normal maintenance cycles. By starting with a detailed plan, we have already achieved full compliance on our business-critical applications, and we can be confident that there will be no surprises as we move closer to the new millennium.

All of this talk about the Year 2000 problem could easily be ignored as hype for consultants and lawyers, but the scope of this issue is unlike anything experienced in the information age. Undoubtedly, a lot of planning, long hours and innovation will see that the world will muddle through this problem. If we are all aware of the issues involved, and take them seriously, the more energy we can dedicate to celebrating the new millennium rather than fearing it.

For more information on the Year 2000 issue, contact me at SMS ext. 335 or via e-mail at: DOUGT@smswi.org, or visit one of the following Internet Web sites:

Yahoo's comprehensive listing of Year 2000 sites:

http://www.yahoo.com/Computers_and_Internet/Year_2000_Problem

The official Year 2000 site:

<http://www.y2k.com>

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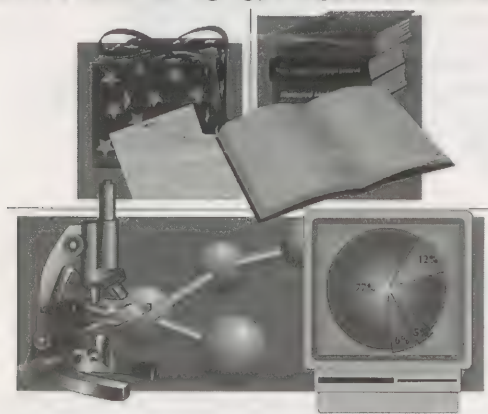
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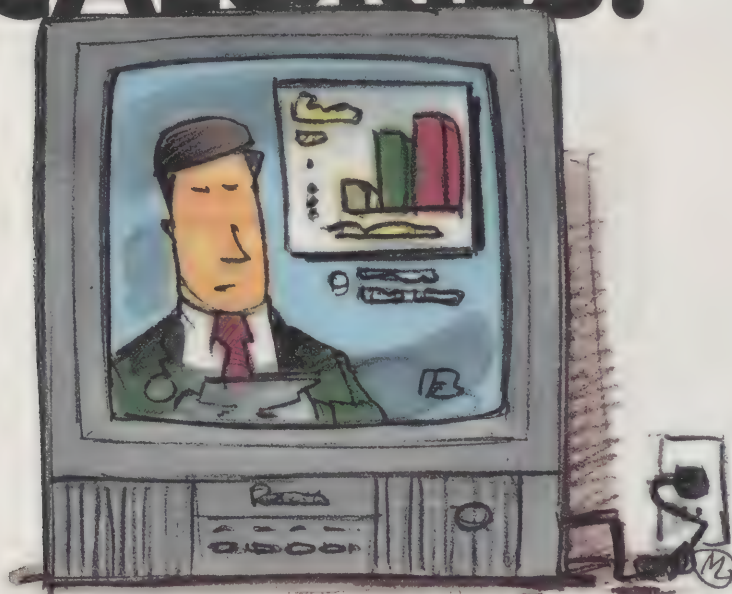
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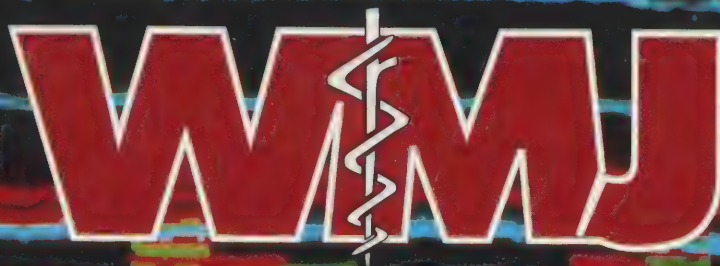
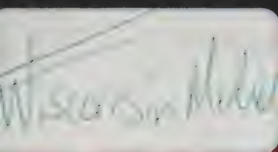
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April 1998

Genetics, Ethics and the Law

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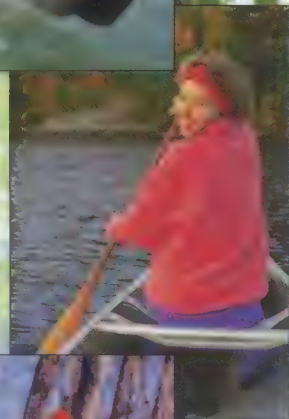
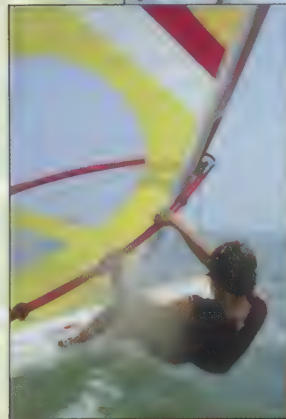
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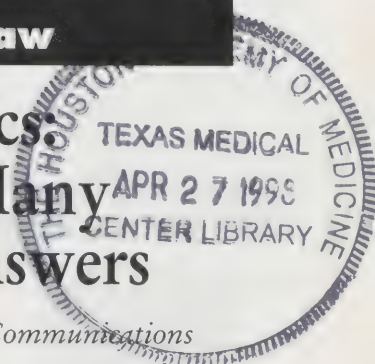




Thoughts on... Genetics, Ethics and the Law

Human Genetics: For Physicians, Many Questions, Few Answers

by Judith Burke, Director, Publications & Communications



Human genetics. What a vast, exciting realm of science, futuristic only a few short decades ago. What a vast, exciting, *complex* realm of science for physicians, genetics counselors, lawyers and legislators today. Physicians may be bombarded with information on every imaginable disorder, disease, syndrome, and symptom, but patients, too, are more aware, if not actually more educated, today than ever before about health and health care delivery. When patients are the direct targets of pharmaceutical company advertisements for everything from high blood pressure and cholesterol medications to genetic testing, the challenge for physicians becomes one of trying to educate and inform them objectively, armed with the facts. Unfortunately, the time required of physicians to simply gather the facts surrounding genetic testing and treatments, not to mention the amount of time required to explain the most basic options to patients, is massive and largely under-available.

Genetic testing is not about Dolly the sheep. It's about your patients demanding BRCA1 testing because they've read that it's available and will "tell them if they will get breast cancer or not." It's about sorting through the array of headlines in every day's lay press and figuring out how that compares with your clinical experiences and those of

your colleagues. It's about an expanded definition of informed consent and a new expectation of what constitutes 'normal' and 'abnormal.' It's about privacy and confidentiality and who has the right to know that a test was performed and the result. It's about asking a lot of difficult questions and, frequently, not getting any clear-cut, definitive answers.

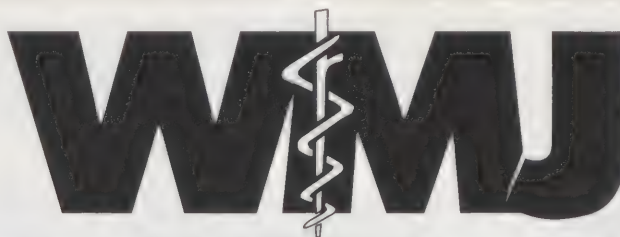
This month, the *WMJ* looks at the complex issues surrounding genetic testing and the hopes for burgeoning treatments. As with previous complicated topics that we've tackled, we hope merely to raise the questions for you in these pages. We know that the topic is too extensive for us to provide a definitive report. However, by asking the questions, we hope to provide you with avenues for thoughts and further discussion. We hope you will learn something new or perhaps look at genetics in a new light.

We are delighted to share with you two special Guest Editorials. Arthur Derse, MD, JD, offers a helpful overview of the basics of genetic testing and raises some serious questions about where the future of genetic testing may take us. His editorial, *The Brave New Genetic World*, begins on **page 19**. Daniel Icenogle, MD, JD, in *Update on Genetic Dilemmas* (**page 23**), looks at ethical issues including cloning, privacy and confidentiality, and prenatal testing. In our feature section, you'll find articles highlighting the types

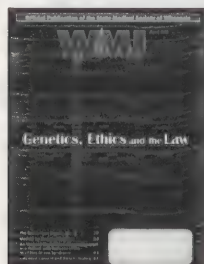
of issues being raised by genetic testing and counseling here in Wisconsin. Focus on Genetics, Ethics and the Law, beginning with Marc Kennedy's article, *Genetic Testing: Harbinger of Hope or Landmine in the Medical Landscape?* starts on **page 30**.

In the Wisconsin Medical Journal, we feature a paper by Marc S. Williams, MD, et al, entitled, *An Unusual Chromosome Rearrangement in a Patient with Features of the Wolf-Hirschhorn Syndrome* (**page 42**) and an accompanying editorial by David Wargowski, MD, *Physicians Play Role in Genetic Developments* (**page 46**). This month's From the Office of General Counsel column features a guest contribution by Timothy J. Strattner, JD. His article, *Informed Consent and Genetic Testing*, begins on **page 57**.

The Human Genome Project, the advances in understanding human genetics, and genetic testing all offer a wonderful step for medicine. But it is a step only. The ethical, legal and practical questions being raised now, even as genes are identified, the tests are perfected and new tests are developed, will help determine the ways in which testing will become a practical reality. It is vitally important to ask the questions now while this technology is in its infancy. It is vitally important for physicians to be involved in formulating the questions and influencing the outcomes.



Official Publication of the State Medical Society of Wisconsin



COVER THEME GENETICS, ETHICS and the LAW

The analysis of polymorphic Short Tandem Repeats (STR) is commonly used in paternity testing, matching forensic samples and excluding falsely-accused defendants. STR analysis involves Polymerase Chain Reaction (PCR) amplification of minute quantities of genomic DNA to develop a genetic profile for an individual.

The cover image was produced using Promega Corporation's PowerPlex™ Fluorescent STR System and the Hitachi FMBIO® Fluorescent Scanner. By making use of eight loci, the PowerPlex™ System provides a probability of a match (pM) of 1 in 1.18×10^8 Caucasian-Americans.

The WMJ gratefully acknowledges Promega Corporation and Isobel Maciver, Editor, for use of the cover image which appeared on the cover of Profiles in DNA Volume 1, No. 1, May 1997. For more information on Promega Corporation, visit their World Wide Web site at: <http://www.promega.com>.

Cover design by Eric Landmann,
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The *WMJ* (ISSN 0043-6542) is the official publication of the State Medical Society of Wisconsin and is devoted to the interests of the medical profession and health care in Wisconsin. The managing editor is responsible for overseeing the production, business operation and contents of the Journal. The editorial board, chaired by the medical editor, solicits and peer reviews all scientific articles; it does not screen public health, socioeconomic or organizational articles. Although letters to the editor are reviewed by the medical editor, all signed expressions of opinion belong to the author(s) for which neither the *WMJ* nor the SMS take responsibility. The *WMJ* is indexed in Index Medicus, Hospital Literature Index and Cambridge Scientific Abstracts.

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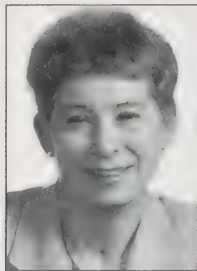
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President's Page

What is the Measure of a Year?

by Sandra L. Osborn, MD

A simple question not easily answered. My year as President of the State Medical Society of Wisconsin has felt like the shortest year of my life because it has been a time of continuing change for the House of Medicine and for the Society. A time when the world became both smaller and larger. Smaller because not only is access to information often nearly instantaneous, so to is access to disease (an unusual virus can infect groups previously unexposed, before the vector is

recognized). And larger because information expands our horizons, we can interact with more persons in more places with opportunities never before available to civilization.

These changes have always occurred, but medicine, especially, is in a time of significant transition. None of us practices medicine either as we learned or as we anticipated while we were learning. Obviously, learning must be continued to enable us to give the best care to our patients.

The past year has been one of continued scientific breakthroughs, but our Society has had to deal much more intensely with issues of how we practice medicine rather than the content of that practice. At the 1997 Annual Meeting we promoted the Extinguisher's message to children to encourage them not to smoke, and throughout the year we observed as the tobacco companies' secret policies for "hooking" children as smokers were revealed.

Smoking and its effects have been a concern to physicians for many years, but not until it became a public health concern has significant progress been made on finding a solution; a solution we are happy to support. This is a victory for science. But during this year, one of our recent victories (caps on liability awards) was seriously threatened, and will, in all probability, be modified. The modification is intended to benefit the families of victims of wrongful-death from all causes. We hope this will be a victory for the families.

How we practice medicine is changing in many respects:

- More physicians practice together, in groups with a variety of organizational structures ranging from several physicians in a single specialty to multi-specialty groups of various sizes, to IPAs, to physician-run HMOs, to national management organizations. These new organizations have not reached a steady state and are still merging and dissolving. We no longer practice without considering financial costs; and we practice with a larger variety of non-physician colleagues.

Our needs, as individual physicians, are not as uniform as they were in the past. The SMS physician census taken in the summer of 1997 defined some similarities and differences. The SMS has recognized that these organizational changes must be reflected in our structure both in the physician organization and at the staff level

among those who carry out the policies of the physician organization.

To better understand the needs of state physicians and involve them in fulfilling those needs, the Governance Structure Task Force has created a new concept in organization for us to consider; the staff has been reorganized and spends more time going to our members to assess needs and supply support. PIC-Wisconsin created a new liability insurance package that benefits SMS members. The *WMJ* (see June, 1997) published a special issue devoted to the areas of practice of many of our non-physician colleagues. Managed care was the focus of the January, 1996 and October, 1997 issues of *WMJ* and a managed care forum was held in Green Bay in April, 1997, at the time of our Annual Meeting. HCFA has promulgated new regulations to evaluate fraud and abuse in use of E & M codes. The Medical Society has responded by creating an exceptionally useful workshop for physicians and their office personnel to learn the latest on the documentation guidelines.

- We no longer practice in an environment where physicians make decisions based only on what seems to be an appropriate plan of care. For some of us, our employer/group makes decisions about hours that we work and benefits we receive; third party payors make decisions about benefits for patients — drugs that are covered, hospitals acceptable for

Continued on p. 6





EVP Report

Physicians Cannot Remain Silent

by John E. Patchett, JD

Lawmakers took aim at physicians last month, and you and your patients have been wounded. The data collection bill that taxes physicians for the administrative cost of forwarding diagnosis codes and charges to the state passed easily and is headed for Governor Thompson's desk. We also took a hit on tort reform, although it was much less severe than it could have been. Lawmakers more than doubled the current cap for loss of society and companionship in wrongful death actions to \$350,000 for adults. For children, the cap rose to \$500,000 — more than triple the current limit.

On the bright side, we were able to stem our losses by successfully blocking a full scale effort to completely repeal the caps on non-economic damages in medical malpractice cases and the loss of society and companionship in wrongful death cases. We also were able to persuade legislators not to single out physicians by making the increase in the wrongful death cap applicable only to medical liability cases.

Still, this is not the time to lick our wounds. We have to fight back — all of us. There is only so much SMS staff can do when virtually every powerful interest group in the state is on the other side. I can't tell you how maddening it is to hear your legislators tell our Public Affairs staff that physicians were virtually silent on these bills. The phones weren't ringing, so they voted to keep their more vocal constituents happy.

It's so easy to be that vocal constituent — the one who makes legislators pause and give serious thought to the votes they are casting, rather than simply following the crowd. If an issue is before the legislature that is of special interest to you or your patients, call the SMS Public Affairs staff (800-362-9080). They are happy to provide you with more information, and can put you in contact with the legislators who are in a position to make a difference. On issues of critical importance to the State Medical Society as a whole, staff issues Legislative Alerts asking you to contact your representatives. The alerts explain the issue and provide a few talking points for your conversations with legislators. Staff also advise of the timeliness of the issue, and will ask you to telephone, write, or e-mail your lawmaker when such advocacy will pack the biggest punch.

When you contact your legislator speak in terms of your personal experience. It's the most effective way to deliver your message. Tell the legislator how the issue in question will affect your ability to deliver high-quality health care, and explain the potential ramifications to your patients. And, if you talk to a staff member, recognize that this is almost as good as talking directly to the legislator. Aides want their bosses re-elected, and keeping constituents happy is a good way to make sure that happens.

We have to mobilize our troops, get to the phones and

make sure we come out swinging in the final round. **Call Governor Thompson's office at 608-266-1212** and let him know that these bills are bad public policy, and that vetoes are in order. Don't expect the media to do it. Despite our efforts to educate the media and public about the data collection bill, the media completely ignored the serious privacy implications associated with having sensitive health care data for potentially millions of patients flow into the state's computer bank. There's also been little coverage of tort reform and how it will cause everyone — physicians and all drivers in the state, for example — to pay higher insurance premiums. Will this save lives or prevent injuries? No. It'll create a field day for trial lawyers.

The time to act is now. Pick up the phone and let your government know that you and your patients have had enough. Furthermore, get involved in the political process by joining WIS-PAC so your voice can be heard. Medicine needs to help those legislators who understand health care so they can return to Madison to fight for patients and physicians. If you just sit on the sidelines and let other interest groups get involved, these recent legislative events have proven that bad things will happen to you, your patients and your practice. You must get in the game — not sit in the bleachers — or we all forfeit our ability to influence the future.



admissions, and how long the patient may stay without accruing personal expenses. Patients are more knowledgeable and want to participate more in decision making. The governments (federal, state and local) believe that laws and regulations can improve the interests of these governments and the health of their citizens.

Examples include Healthy Start, Badger Care, partial birth abortion, 24-hour abortion waiting period, sites where cigarette vending machines can be placed, the right to carry a gun, data collection, and the Patient Protection Act, all examples of recent or current *political* issues. *WMJ* highlighted Politics and Medicine in May, 1997. Significant resources and energy of our member

physicians and staff are committed to dealing with this part of our practice management. More physicians are going to the Capitol to talk with legislators to help them understand the concerns of our members. Our SMS staff have also been of assistance to specialty societies in meeting with legislators. This has been a busy, intense year because of some of the previously mentioned issues. Each dues-paid member for 1998 receives the most current *Physician Guide to Health Law* to aid in deciphering the important impact of health care legislation.

- The technology explosion has radically changed how we evaluate and treat our patients. We are able to more carefully diagnose and more specifically treat earlier, faster and often with less discomfort and better results for our patients. There are definite cost increases but often also cost savings. Balancing these with the benefits to our patients isn't



always easy. Day-to-day routine practice is easier due to technology: with the use of a computer to access individual patient information, access scientific information from the source, such as the CDC, and engage in rapid communication both for physicians and patients. If we ask the right questions, we'll get the needed data rapidly.

Regulation of technology, especially concerning privacy of patient information and responsibility in practice use, is on the horizon. A serious concern about the data collection bill (SB 315) is the potential for loss of privacy; this is vitally important even when discussing collection of good data. Another high-tech breakthrough that has many implications for the future of health care is genetic cloning. Here the concerns are both scientific and ethical. *WMJ* is exploring ethical issues this month. The SMS's World Wide Web site, www.wismed.com, is your source for constantly changing information about organized medicine, which will inform both patients and physicians, and allow us to receive instant feedback from members on issues of concern.

- Physician to Community communication is not a new aspect of our practice, but in this time of increasing depersonalization it is an important way to maintain and promote the humanity of our profession. We have highlighted those special individuals selected as our Physician Citizens of the Year in the *WMJ* this year. These physicians are all examples of the best that medicine can provide outside the examining room. Another group of equally deserving physicians

has been selected for the 1998 Award, and you will learn about them also. Other physicians have been selected by their communities for awards. Doctor James Albrecht of Jackson was named the 1997 Man of the Year by the Jackson Area Business Association for work in establishing Washington county's first emergency medical vehicle service and founding the county's free health clinic. Doctors Jack Kenny and Richard Hendricks were among ten individuals selected by the *Wisconsin State Journal* when they recognized those who "Made a Difference" in our community. Doctor George Schneider and his wife, Kathleen, were honored by the *Milwaukee Journal Sentinel* for work on behalf of a free medical clinic.

County medical societies sponsor mini-internship programs, volunteer to speak at schools with messages such as smoking dangers, collect and award thousands of dollars in scholarship funds to deserving students, check blood pressures at health fairs, and provide a great many more time-consuming, unselfish efforts.

What will matter, what will be important a year from now? It is still a privilege to be a physician. With that privilege comes the responsibility of the care of our patients. We can determine what matters, what is really important by remembering our privilege and aligning our decisions and actions with our goals. We should measure all our years by the degree to which we have served humanity.

Dilated Exam by an Optometrist Inadequate

Your March issue of the *WMJ* which was devoted to diabetes mellitus was helpful in emphasizing the important aspects of care for diabetics. However, I do disagree strongly with one of the recommendations listed in the table on page 18. Under Eye Care, the Guideline lists a "dilated exam by an ophthalmologist or an optometrist." I do not feel that a dilated exam by an optometrist is an ade-

quate screening for diabetic eye disease. I have a file of several examples of diabetic patients who have had their routine eye care through optometrists and were never told that they had any problems related to their diabetes and then came in to see me when their vision started to fail and, unfortunately, were well beyond the point where treatment should have been instituted. Although there may be

optometrists who are competent at screening patients for diabetic retinopathy, since patients do not have the ability to judge the competence of optometrists I feel we should recommend to diabetics that they have their annual eye exams with ophthalmologists only.

Stewart J. Hazel, MD
Department of Ophthalmology
St. Mary's/Duluth Clinic Health System

Overdue Acknowledgement

My manuscript, "A System of Tele-Oncology at the University of Wisconsin Hospital and Clinics and Regional Oncology Affiliate Institutions," published in the January, 1998, *WMJ*, did not properly reference the work done by Praveen Sinha, PhD. Dr. Sinha was responsible for developing

the radiation oncology treatment planning data transmission steps that connect and transfer images between the regional facilities and the University of Wisconsin Hospital and Clinics Radiation Oncology Department that is described in the Implementation section of the paper on page 40.

Dr. Sinha's contribution should have been cited in this paper. I regret omission of an acknowledgment of his work.

Judith Anne Stitt, MD
Professor of Radiation Oncology,
UW Medical School

Corrections

In the March *WMJ*, the telephone number appearing on pages 17 and 18 for the Diabetes Control Program was incorrect. The number is: (608) 261-6871.

On page 18, the Guidelines, under Kidney Function, Care/Test, the urine for microalbumin should read: "If higher than 30 μ g/mg creatinine or >30 mg/24-hours, initiate ACE inhibitor (unless contraindicated)."

On p. 30, the following sentence was omitted: As indicated by Figure 2, the prevalence of diagnosed diabetes increases with advancing age. Prevalence is similar for males and females (not shown). Figure 3 was mis-labeled and is shown corrected at right.

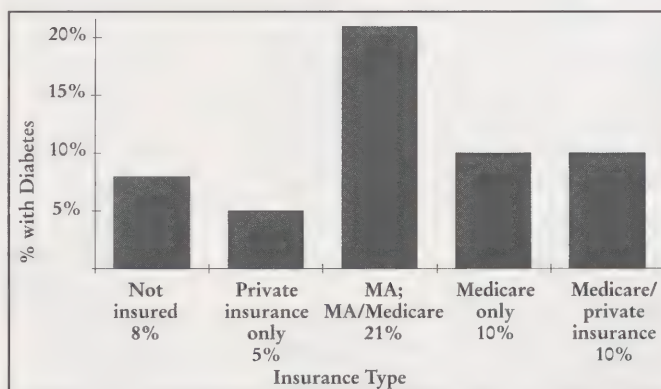


Figure 3. Prevalence of Diagnosed Diabetes Among Adults Aged 45 and Older, by Insurance Status, Wisconsin 1996. Source: Wisconsin Family Health Survey, Center for Health Statistics.

Profile of Two Physician Citizen of the Year Award Winners



Thomas Cunningham, MD (left), and James Hamp, MD, take a break from their volunteer work on the Ashland City Ski Trail.



The Physician Citizen of the Year Award honors recipients for their uncompensated civic, cultural, economic, charitable and health care services they have provided to their local or state communities, recognizing those who have given their time and talents to improve conditions in our state.

Implemented in 1982 as a colleague-nominated award, the Physician Citizen of the Year Award's annual nomination process was opened to the public in 1991. The result was an overwhelming outpouring of admiration and effection for Wisconsin's physicians. Each year since then, based on these nominations, the State Medical Society's Commission on Public Information selects award recipients from various SMS districts in the state.

Thomas Cunningham, MD, a family physician with the Chequamegon Clinic, and **James Hamp, MD**, an otolaryngologist with ENT Professional Associates, in Ashland, jointly received the Physician Citizen of the Year Award for their work in creating a cross-country ski trail in Ashland. The ski trail was the result of much planning with local officials and land owners, fund raising and trail clearing. Together, along with other volunteers, Drs. Cunningham and Hamp raised nearly \$12,000 from local businesses and organizations.

According to Dr. Hamp, "...the long-term bene-

fits make the effort worthwhile. We'd like to see a higher level of health consciousness in our community, and this trail will make the change in that lifestyle possible."

The trail is 16-ft. wide and features a gently rolling, wooded terrain ideal for recreational skiers and cross country racers. It is designed for winter skiing, walking, hiking and running.

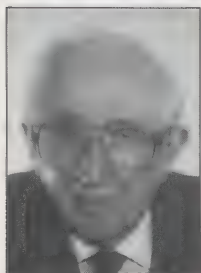
"We are eager for residents and students to discover and use the trail on a regular basis," said Dr. Cunningham.

The physicians were presented their award by SMS President Sandra Osborn, MD, at an Ashland-Bayfield-County Medical Society Meeting.

"What a wonderful gift to the area — one that involves community teamwork, environmental education, physical fitness and outdoor leisure. . . All because two physicians had a unique vision of what could be done if they put their minds to it," said Dr. Osborn.

Doctors Cunningham and Hamp continue to work on the trail and collect monetary donations for trail maintenance. They hope the trail can be expanded in the near future.

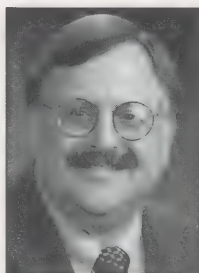
Who's In The News



James Albrecht, MD



Steven Blaha, MD



Hobart Bosworth, MD



Harold L. Cohen, MD

James Albrecht, MD, a retired family physician, was named 1997 Man of the Year by the Jackson Area Business Association. He is recognized as a pioneer in the Jackson and Washington County health communities and helped establish Jackson County's first emergency rescue squad. Doctor Albrecht also helped in establishing Donated Health Care Services, the county's free health clinic.

Kathleen Antolak, MD, a family physician with Hudson Physicians Clinic, was awarded a Bush Medical Fellowship and will study rheumatology, women's health, particularly post-menopausal women, sports medicine, computer use, public health, and successful aging. Doctor Antolak also worked at the Center for Victims of Torture for the past four years and will do more study and public speaking on the recognition and care of torture survivors.

David Athas, MD, an emergency room physician at Meriter Hospital, is featured on a billboard appearing around the Madison area titled, "Real Life, Real Heroes." Doctor Athas earned his medical degree at the University of Wisconsin Medical School and interned at Brooks Hospital in San Antonio, TX.

Joining the staff at Aurora HealthCare clinics in Washington County are otolaryngologists **James Barton, MD**, **Steven Dankle, MD**, and **Benjamin**

Teitelbaum, MD. Doctor Barton and Doctor Dankle provide services at the Aurora Health Center in Slinger and at Aurora Medical Group Hartford. Doctor Teitelbaum provides services at the General Clinic in West Bend.

Edward Bayer, MD, and **Walter Howard, MD**, recently received board certification in pediatrics. Doctor Bayer is associated with the La Salle Clinic Madison Center, in Appleton. He received his medical degree from the University of Wisconsin Medical School and completed his residency at Vanderbilt University Medical Center, TN. Doctor Howard is associated with the La Salle Clinic-Oshkosh. He has a special interest in sports medicine and is also certified in pediatric advanced life support and neonatal resuscitation. He earned his medical degree from the University of Wisconsin Medical School and completed his residency at Michigan State University and De Vos Children's Hospital, Grand Rapids, MI.

Steven Blaha, MD, an internist with the Aurora Medical Group Oshkosh, was elected a Fellow of the American College of Physicians. This distinction recognizes achievements in internal medicine. Doctor Blaha earned his medical degree from the University of Wisconsin Medical School and completed his residency at Lutheran Hospital, La Crosse.

Family physicians, **Kevin M. Bluemel, MD**, of the Mercy Brodhead Medical Center, in Brodhead; **Mark C. Dickmeyer, MD**, of Whitewater Family Practice, in Whitewater; **Kristine Flowers, MD**, of the General Clinic, in Antigo; **Sandra K. Groenewold, MD**, of the New Berlin Family Physicians, SC; **Robert House, MD**, of the La Salle Clinic-Silver Creek, in Ripon; **Vicki L. Mayer, MD**, of Hudson Physicians Clinic, in Hudson; and **Paul Nelsen, MD**, of Ripon Family Health Care Clinic, Ripon; were named Diplomates of the American Board of Family Practice. This status requires an intensive written test of the physician's abilities in pediatrics, internal medicine, surgery, obstetrics, gynecology, psychiatry, preventive, and other aspects of family practice.

Hobart Bosworth, MD, an ear, nose and throat specialist, joined Memorial Hospital of Iowa County, Dodgeville. He earned his medical degree at the University of California, San Diego, School of Medicine, and served a residency in otolaryngology-head and neck surgery at the University of California Irvine Medicine Center.

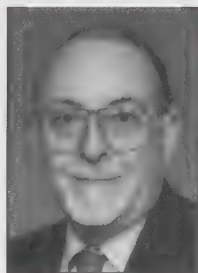
Kenneth Bruder, MD, a surgeon with La Salle Clinic in Appleton, has become a Fellow of the American College of



Who's In The News



David J. Heegeman, MD



James R. Heersma, MD



Thomas Hinck, MD



Rebecca Lyman, MD

Surgeons. Doctor Bruder practices general vascular and thoracic surgery with special interests in breast disease and laparoscopic surgery. He earned his medical degree from Oral Roberts University School of Medicine, Tulsa, OK, and his residency at the University of Nebraska Medical Center, Omaha, NE.

Asriani Chiu, MD, has been appointed assistant professor of medicine and pediatrics in the division of allergy and immunology at the Medical College of Wisconsin. She earned her medical degree from the Medical College of Wisconsin, where she also completed her fellowship in allergy and immunology and her internal medicine residency.

Harold L. Cohen, MD, an ophthalmologist, joined the Marshfield Clinic. He earned his medical degree from Johns Hopkins University School of Medicine in Baltimore, MD, and served a residency in ophthalmology at the University of Iowa Hospitals and Clinics in Iowa City.

A. Nicholas Gianitsos, MD, a urologist, joined the Mercy Health System and will practice at the Mercy Beloit Medical Center, the Mercy Walworth Medical Center in Lake Geneva, and the Mercy Clinic West in Janesville. Doctor Gianitsos earned his medical degree from Boston University School of Medicine and completed his residency in

urology at the University of Wisconsin Hospital and Clinics in Madison.

Ronald Harms, MD, a family physician, was named Shawano's 1997 Distinguished Citizen of the Year at the Chamber of Commerce's annual banquet in January. Doctor Harms started the Shawano High School academic banquet and has served as its chairman for the past 11 years. He became the first President of the Dollars for Scholars program and served as President of the Shawano Gresham School Board from 1994-1997. He serves as medical director for sports medicine at Shawano Medical Center and medical director of occupational medicine at Shawano Clinic. Doctor Harms was recognized in 1996 when he was named SMS Physician Citizen of the Year for the Sixth District.

David J. Heegeman, MD, an emergency medicine specialist with the Marshfield Clinic-Marshfield Center, is serving as Medical Director for the Mosinee Ambulance Service. He will be overseeing all quality assurance for the ambulance service and assure appropriate certification in advanced skill levels for the EMS personnel. Doctor Heegeman earned his medical degree from the Medical College of Wisconsin, Milwaukee; and completed an internal medicine residency at Marshfield Clinic and St. Joseph's Hospital, Marshfield.

James R. Heersma, MD, a retired pediatrician, was named

Muscoda Chamber of Commerce "Citizen of the Year." Doctor Heersma retired and moved to Blue River several years ago, but there was a great need for a doctor in the area. So, he turned an old railroad depot into an office and began seeing patients from the Muscoda and Blue River area. Since his second retirement, he has been active in the Chamber of Commerce and Lions Club, an advisor for the Muscoda Rescue Squad, and currently is working with the Commission on Aging with an interest in long-term care problems for the elderly.

David Hendrickson, MD, has joined the Franciscan Skemp Healthcare Emergency Medicine Department - La Crosse Campus. He obtained his medical degree from the University of Wisconsin-Madison and completed his internship at St. Paul-Ramsey Medical Center, in St. Paul, MN. Doctor Hendrickson is board certified by the American Board of Emergency Medicine.

Staffing the newly opened Frederic Clinic will be family physicians **Thomas Hinck, MD**, **Rebecca Lyman, MD**, **Andrew Mayo, MD**, and **William W. Young, MD**. Doctor Hinck earned his medical degree from the University of Minnesota Medical School. His areas of interest include obstetrics, dermatology, pediatrics, colposcopy, and obstetrical ultra-sound and emergency medicine. Doctor **Lyman** graduated from the Medical College of Wisconsin and



Who's In The News



Andrew Mayo, MD



William W. Young, MD



Sherine Parimanath, MD



David Schifeling, MD

her interests include obstetrics, gynecology, pediatrics, adolescent care, colposcopy, cryotherapy, and LEEP. **Doctor Mayo** graduated from the University of Minnesota-Duluth and completed his family practice residency at St. Joseph's Hospital in St. Paul, MN. His medical interests are geriatrics, obstetrics, and infant/children's medicine. **Doctor Young** graduated from the University of Minnesota Medical School and specializes in geriatrics and general medicine.

Rekha Kini, MD, joined Oconomowoc Memorial Hospital as an internal medicine specialist. She completed her medical degree and internship at Kasturba Medical College, Manipal, India and completed her residency in internal medicine at the Medical College of Wisconsin, Milwaukee. She has won several awards and honors, including distinctions in pharmacology, microbiology and pathology.

Christopher L. Larson, MD, of Larson Eye Care in Sheboygan, was awarded board certification in the sub-specialty field of cataract/implant surgery by the American Board of Eye Surgery. He is one of only 300 ophthalmologists that have been certified in cataract/implant surgery since the certification program began in 1989. Doctor Larson earned his medical degree at the University of Wisconsin Medical School. He served his internship at Presbyterian Medical Center in Denver, CO, and his residency in

ophthalmology at the University of Wisconsin Hospital and Clinics.

Timothy N. Logemann, MD, a cardiologist with Cardiovascular Associates of Northern Wisconsin, SC, has been elected a Fellow of the American College of Physicians. He is associated with Wausau Hospital and is director of invasive cardiology, director of the cardiac catheterization laboratory, section head of cardiology, and chair of the Cardiovascular Morbidity/Mortality Committee. Doctor Logemann is President and a founder of the Cardiovascular Associates Research and Education Foundation, Inc., and is dedicated to cardiovascular research both intervention and pharmaceutical.

Hugh Madden, MD, and **Stephen Paulk, MD**, general surgeons with Divine Savior Hospital in Portage, have completed recertification by the American Board of Surgery. They are also Fellows of the American College of Surgeons. **Doctor Madden** completed his residency at Creighton University Affiliated Hospitals and Sinai Hospital, a Johns Hopkins affiliate. **Doctor Paulk** completed his residency at the University of Iowa.

Robert McKay, MD, a general surgeon, joined the Red Cedar Clinic, part of Mayo Health System. He received his medical degree at the Memorial University in St. John's, Newfoundland, and completed his residency at the University of Ottawa. Doctor

McKay is a Fellow of the Royal College of Surgeons of Canada and is certified by the American Board of Surgery. His interests include endoscopy, laparoscopy, trauma, critical care, surgical oncology and colorectal surgery. Doctor McKay also coaches and plays hockey and plays the bagpipes.

Dianne Meyer, MD, of Sauk Prairie Memorial Hospital's Occupation Health Partners recently qualified as a certified Medical Review Officer. Her duties, according to federal law, will be to review workplace drug and alcohol tests to determine whether substance abuse is occurring.



Joining the Marshfield Clinic-Lakeland Center in Minocqua are two hospitalists, **Laura M. Nelson, MD** and **Linda R. Seale, MD**. Hospitalists manage care of hospitalized patients much the way that primary care providers manage care of outpatients. **Doctor Nelson** earned her medical degree from the University of Wisconsin Medical School and completed her residency in internal medicine at Marshfield Clinic/St. Joseph's Hospital. **Doctor Seale** earned her medical degree from Tulane University Medical Center, New Orleans and completed her residency at the University of Illinois, Chicago.

Sherine Parimanath, MD, an internal medicine specialist, has joined Marshfield Clinic. She earned her medical degree from

Who's In The News



Lynda Siewert, MD



Gerald Verstopp, MD

Calicut Medical College in India, and served a residency in internal medicine at Helene Fuld Medical Center in Trenton, NJ.

Jon Robinson, MD, an emergency room physician at Sinai Samaritan Medical Center, Milwaukee, is the Midwest's first Tactical Emergency Medical Support Officer (TEMESO).

Doctor Robinson completed several tactical medical courses, plus a 400-hour training program required of all police officers in the state. In addition to tactical situations, he will also act as a safety officer and keep the police department abreast of the latest developments in blood-borne pathogens and related subjects.

David Schifeling, MD, an oncologist-hematologist, joined Marshfield Clinic's Regional Cancer Center at Sacred Heart Hospital. Doctor Schifeling earned his medical degree from the University of Chicago Pritzker School of Medicine. He served a residency in internal medicine at the Medical University of South Carolina in Charleston, and is an American Cancer Society Fellow and was a research fellow in hematology-oncology at Bowman Gray School of Medicine in Winston-Salem, NC.

Robert L. Sellers, MD, a family physician at Mariner Medical Clinic in Superior, was honored for 25 years of membership in the American Academy of Family

Physicians. Doctor Sellers earned his medical education from the University of North Dakota, Grand Forks, and the University of Illinois, Chicago. He completed his internship at St. Luke's Hospital, Duluth, MN.

Lynda Siewert, MD, a specialist in family practice with obstetrics, joined the staff of the Wildwood Family Clinic in Cottage Grove. She earned her medical degree from the University of Wisconsin Medical School and completed a three-year residency in family practice at the University of Wisconsin Family Practice Residency Program. Doctor Siewert has a special interest in women's health and preventive medicine.

Michael Strigenz, MD, an otolaryngologist, was re-elected president of Agnesian HealthCare's Fond du Lac Regional Clinic, SC Board of Directors. He earned his medical degree at the Medical College of Wisconsin and completed his residency at the Medical College of Wisconsin and Affiliated Hospitals.

Pulaski family physician, **Gerald Verstopp, MD**, has joined Prevea Clinic of Green Bay. Doctor Verstopp earned his medical degree at Catholic University of Leuven, Belgium. He completed his undergraduate degree at the University of Wisconsin-Madison, and his residency in family medicine at Waukesha Memorial Hospital in Waukesha.

Ben Wedro, MD, an emergency room physician at Gundersen/Lutheran Medical Center in La Crosse, served as one of the physicians hired by CBS television to treat its staff at the winter Olympics in Nagano, Japan. He saw an average of 60 CBS workers a day who suffered mainly from dehydration or exhaustion. This is his third Olympics. In Lillehammer, Norway, in 1994 he was the only physician hired by CBS. At the 1992 Olympics in Albertville, France, he served as a physician and interpreter.

AMA Awards

The Wisconsin Physicians listed below recently earned the AMA's Physician Recognition Award. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations. The • indicates members of the SMS.

- Franklin H. Blackmer, MD
- Justin F. Bubolz, MD
- Mary E. Giorlando, MD
- Viktor Gottlieb, MD
- Raymond Headlee, MD
- Samuel B. Picone, MD
- Donald L. Renfrew, MD
- Richard O. Schultz, MD
- William L. Semler, MD
- Scott R. Strehlow, MD
- Christopher A. Young, MD

Welcome New Members

The individuals listed below were recently elected to SMS membership by their county medical societies. We are pleased to welcome them to the SMS.

Clark

Maria Graziella A. Cruz, MD
Raj Vir Singh, MD

Columbia-Marquette-Adams

Hugh P. Madden, MD

Dane

Edward H. Abbott, MD
Ann Renee Berlage, MD
Shari Lynn Becker, MD
Olafur Gudlaugsson, MD
James Hewett Killpack, MD
Christine Korger
Charles Lyndon A. Rahming, MD
Alessandro Ranieri Rossi, MD
Victoria Clair Shampaine, MD
Lynda Ann Siewert, MD
Robin McGinn Wright, MD

Douglas

David J. Kirby, MD

Fond du Lac

John M. Billinsky, Jr., MD
Mary Swieskowski Cummins, MD
Jerry C. Evans, MD
Michael Wayne Jones, MD
Catherine H. Lee, MD
Darren G. Nelson, MD
Gerald Edward Sullivan, MD
Vydunas G. Tumas, MD
Todd Joseph Van Blaricom, MD
James Stuart Williams, MD

Grant

Hobart Hunt Bosworth, MD

Green

Carlos E. Neumann, MD
Gaines E. Richardson, MD

Kenosha

Edwin Dwayne Turner, MD

Marinette-Florence

Vijay Singh, MD

Racine

Scott N. Beatse, MD
James H. Cohn, MD
David E. Mahon, MD
Paul J. Rykwald, MD
Lisa A. Wolf, MD

Rusk

Shawn Thomas Sedgwick, MD

Sauk

Yvonne M. Brault, MD
Michael F. McDermott, MD

Shawano

Tod C. Lewis, MD

Wood

Victoria E. Andersen, MD
Nandita R. Bhattacharjee, MD
Linda Marie Daly-O'Neill, MD
Jonathan C. Reeser, MD



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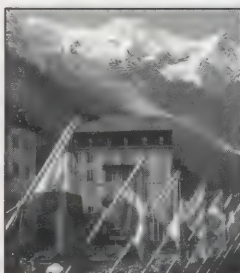
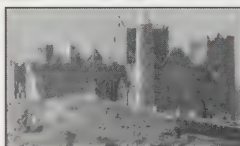
Chamonix - The dazzling snow cap and glaciers of Mont Blanc, Europe's highest mountain, are a magnificent backdrop to the colorful resort of Chamonix. Anyone who loves the Alps will be overawed by the dramatic vistas.

Optional Tours: Geneva City, Zermatt and the Matterhorn, Montreux, Castle Chillon and Gruyeres, Mountain Buffet, and much more!

Lake Maggiore - Deep and mysterious, beautiful and romantic, the Italian Lakes are a haven of peace and tranquility. Maggiore is probably the most beautiful of the lakes, its shores dotted with elegant resorts.

Optional Tours: Venice, Grand Three Lakes Tour, Italian Festa, Borommo Island Cruise and Dinner, and much more!

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In Remembrance

Artwich, Robert, MD, 46, of Oconto Falls, died February 5, 1998. He received his medical degree at the University of Minnesota in 1980, and completed his residency at Marshfield Clinic/St. Joseph Hospital in Marshfield. In 1985, he built the Artwich Clinic which served the entire Oconto County community. He was a member of the American Society of Internal Medicine, Oconto County Medical Society, and the American College of Physicians, from which, he received both mentor and preceptor awards in 1991 and 1993. Doctor Artwich held hospital privileges at Community Memorial Hospital in Oconto Falls, Oconto Memorial Hospital and Bellin Memorial Hospital in

Green Bay where he also served on the board of directors.

Doctor Artwich is survived by his parents,

Ben and Mary Artwich; two brothers and sister-in-laws, Bill and Yvonne Artwich, and their son Billy; Ben and Kris Artwich, and their children, Kristie, Tammy, Michael and Laurie, all of Iron River, MI.

Curry, James C., MD, 71, of Appleton, passed away on February 20, 1998. He earned his medical degree from the Marquette School of Medicine and was the youngest graduate in Wisconsin at that time. He served an internship at St. Agnes Hospital in Fond du Lac and had a general practice for two years in Mount Calvary, WI. He served a residency at Milwaukee County Hospital and at the VA Hospital in Wood, and completed a fellowship in allergy and arthritis at the University of Virginia in Charlottesville, through the National Institutes of Health.

Doctor Curry practiced in Appleton from 1956 until his retirement in 1984. During that time, he was a member of the Associate Staff at both St. Elizabeth Hospital and the Appleton Medical Center. He belonged to a multitude of professional organizations, including the Advisory Board of the AAA-Wisconsin Division; the Advisory Board of the University of Virginia Medical School Alumni Association; the American College of Allergy; Wisconsin State Allergy Society; and the Outagamie County Medical Society.

Doctor Curry is survived by his wife, Kathleen and three children: Kathleen Rettig, of New Richmond; Christopher, of Appleton; and Eileen, of Appleton; and four grandchildren: Rebecca, Patricia, Alexander and Nicholas.

Gundersen, Thorolf E., MD, 87, died February 23, 1998 in La Crosse. Doctor Gundersen was one of the first Wisconsin physicians to be board certified in internal medicine. He earned his medical degree from Harvard Medical School in Boston and completed his internship at Columbia Presbyterian Hospital in New York and Massachusetts General Hospital in Boston.

Doctor Gundersen entered the U.S. Army in 1942 and became medical director for an infantry battalion in which all members were skiers and fluent in the Norwegian language. He was part of the liberation of Cherbourg, France, and was at the Battle of the Bulge before leaving active duty in 1945 with the rank of Major.

Upon returning to the Gundersen Clinic, he put much of his effort in the early part of his

career there into fighting tuberculosis and was director of the Oak Forest Sanitarium in La Crosse.

Doctor Gundersen served as President of the La Crosse County Medical Society in 1956. He was inducted into the SMS Fifty Year Club in 1985, and granted Life Membership in the SMS in 1991.

Doctor Gundersen is survived by his wife, Ruth; three children: Finn, of East Burke, VT; Rolf, of Denver, CO; and Tore Resavage, of Littleton, CO; and one brother, Sven.

Harrison, David G., DO, 44, of Ripon, passed away on February 22, 1998. He earned his degree in osteopathic medicine from the College of Osteopathic Medicine and Science in Des Moines, Iowa. Doctor Harrison completed his residency at Des Moines General Hospital and had practiced at the Princeton Family Medical Practice since 1987. He was a High School Merit Scholar, an Eagle Scout in Boy Scouts of America, and a member of the American Osteopath Association.

Doctor Harrison is survived by his wife, Mary Sue Schnell; five children, ages 2-11: Noah, Mihai, Kira, Calla, and Theresa, all of Ripon; four brothers: Brian, of Appleton; Mark, of Minneapolis, MN; Mathew, of Milwaukee; and Brad, currently with the Peace Corps in South America; and two sisters: Diane Wetzel, of Los Angeles, CA; and Rebecca Skiles, of Portland, OR.

A trust fund has been established for Dr. Harrison's children's education. Donations may be sent to: Schnell-Harrison Children's Fund, C/O M&I Central State Bank, P.O. Box 10, Ripon, WI 54971, Attn: Celeste.



Oberdorfer, Claude E., MD, 75, of Racine, died February 25, 1998. He served in the U.S. Army from October 1942 to April 1946, with duty in the European Theatre of Operations where he received the Battle of the Rhineland Commendation. He then earned his medical degree from Marquette University and completed his internship and a portion of his residency in pathology at St. Luke's Hospital, Milwaukee, and at the VA Hospital, Milwaukee.

Doctor Oberdorfer served as a pathologist at St. Luke's Hospital, Racine; Burlington Memorial Hospital; Racine Medical Clinic; and the Kurten Medical Group. His teaching appointments included the Department of Anatomy, Marquette Medical School, Medical Technology at the University of Wisconsin-Parkside, Whitewater, Platteville, Stevens Point, and Eau Claire. He belonged to numerous medical societies and was the author of several medical papers.

Doctor Oberdorfer is survived by his wife, Gloria; six children: James, of Santa Ana, CA; Jon, of Caledonia; and Jerry, Jeffrey, Joseph, and Mary Rice, all of Racine; four grandchildren: Shannon and Brian, of Santa Ana, CA; and Amy and Annie, of Caledonia.

Springer, Joseph P., MD, 81, of Durand, died February 14, 1998. Doctor Springer earned his medical education at the University of Wisconsin Medical School and completed an internship at St. Joseph's Hospital in Phoenix, AZ, and a residency at Colorado State Hospital in Pueblo, CO.

He returned to Elmwood in 1951 to join his brother, Frank Springer, MD, in a medical practice. In 1957, he established his own practice in Durand. Taking a leave of absence from his practice

in 1964, Doctor Springer served on the Hospital Ship Hope in Conakry, Africa. In 1966, he was a volunteer physician in DaNang, Viet Nam where he ran a pediatric hospital and then in 1969 he spent a year in Mound Bayou, MS, in a clinic for indigent citizens run by Tufts University. He also worked on the island of Saipan in the western Pacific in 1974.

After completing a fellowship in geriatric medicine at the Mayo Clinic, Doctor Springer was the medical director at the Dunn County Health Center until his retirement in 1987.

Doctor Springer is survived by four children: Sally Larson, of Albuquerque, NM; Barbara Springer, of Denver, CO; Joseph Jr. of the Eau Claire area; and Stephen, of Vermillion SD; and four grandchildren: Brandon White; Martha; Eric; and Joey Springer Udelhofen.

Wild, Joseph Peter, MD, 91, of Mequon, died February 18, 1998. Doctor Wild specialized in ophthalmology and otolaryngology and was a member of various medical associations relating to that specialty. He earned his medical degree from the University of Louisville, KY, and completed his residency at the University of Illinois-Research and Educational Hospital, Chicago. Doctor Wild was a member of the 1984 SMS Fifty Year Club and was granted Life Membership in the SMS in 1988.

Doctor Wild is survived by his wife, Cecelia; his daughter and son-in-law, Jocele and Eugenio Ley-Koo; and a grandchild, Ruy Joel Ley-Wild.



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Edna, Eunice and Aunt Emily

(An Entertaining, Educational, Ethical Experiment)

by Philip J. Dougherty, MD, and Lois J. Dougherty, RN

Edna was retarded to begin with. Everybody knew that. The doctor just said, "well it was a poor placenta, or an act of God," or something of that sort. That is the way it was in those days, disregarding that her mother was 40 years old and her father older still at the time of her birth.

Her sister Eunice, older by 15 years mind you, had to grab hold of the reins and try to control the family, faltering as it was. God knows who could have predicted that their father would show up for work one day drunk and fall into the gravel pit where he worked. "Instant death," the coroner would say, "due to severance of the spinal cord." By this time the mother was so depressed she could hear no more. Six months later she left a note apologizing for her impropriety and expressing her embarrassment, but none-the-less jumped from the bridge into the swirling Mississippi.



Dr. Philip Dougherty practices general internal medicine in a multi-specialty clinic in Menominee Falls. He serves on five different ethics committees including the SMS Commission on Medicine and Ethics. Lois Dougherty, RN, Dr. Dougherty's wife, is a trained nurse with a lifetime of practical ethical experiences derived from raising the couple's eight children.

In those days of turmoil, Eunice had found one support, a rock of common sense and courage, Aunt Emily, her mother's maiden sister. Emily had always been most propitious, was self-educated, quiet by nature, but when the occasion arrived, she was able to become a source of information that often settled an argument or discussion, so that she developed the reputation of an oracle for the family.

Edna had grown and matured. Oh yes, retarded to the point of being uneducable, but able to be up and dressed and to wander about the house and yard, and unfortunately, to develop a fascination for matches and fire. One day she came upon a book of matches and started a fire in her bedroom that fortunately was discovered by a neighbor who called 911, but unfortunately not soon enough for Edna to prevent smoke inhalation, cardiac arrest, and a permanent vegetative state.

Eunice felt she could tolerate none of this, her parents both gone, in a sense by their own hands, and where could she turn? Emily was there, but was increasingly showing signs of memory deficit and lack of concentration. However, the family physician, Dr. James O'Brien, had taken care of Mom and Dad, and the family for some time and recognized the problems. In discussion with Eunice, he helped her to under-

stand that it was not ethically necessary to pursue tube feedings or other artificial supports for Edna. So quietly they decided to pursue a program that would keep Edna pain free, using rectal suppositories for relief, until she expired. Within a few days Edna quietly and peacefully passed away, and Eunice was released from burden.

John had entered Eunice's life about the time of the parent's death and in him she found love and consolation. John found it intolerable that he should consider marriage to a person so totally committed to family responsibilities. John was strong and a Prince Charming to Eunice, but not strong enough to tolerate Eunice's loyalty to her declining Aunt. John politely disappeared and, once again, Eunice suffered a loss that weighed heavily.

Briefly, after Edna's death, Eunice dreamed of renewing her relationship with John, but found that he continued to be distant and at the same time that her Aunt Emily became increasingly dependant. Little things at first, like forgetting appointments, or friends' names, soon translated into periods of gross confusion and ultimately deficits that allowed for problems of danger such as attempts at cooking hot dogs in the toaster and heating plastic containers on the electric plates of the stove. It was clear at this point that Emily had become a burden

rather than a support. Alzheimer's disease was present. Eunice realized she was Emily's only relative and care giver, and that eventually she would fall heir to Emily's sizable estate.

One year later, after virtually daily supervision, Emily suffered a stroke that resulted in her inability to swallow and the doctor determined that a feeding tube should be placed. Reluctantly, Eunice agreed to this and Emily was transferred "home" to Eunice's care with the tube in place.

Burning in the back of Eunice's brain was the statement she had heard Emily express when she viewed Edna's problems and had said, "God save me from such as this," and "don't ever let me get into that situation." However, she had never written that in an advance directive.

Days passed into weeks and then months, and one day Emily was found to have somehow pulled out the feeding tube. Eunice could hardly stand it but dutifully called Dr. O'Brien who made a house call and replaced the tube.

At that visit, Eunice decided she had to discuss several things with her old family friend, Dr. O'Brien. She inquired what would happen if Emily were no longer fed through the tube, "how long could she survive?" "Would she have pain, etc.?"

She leaned on the doctor again, describing her frustration that caring for her retarded sister and now her demented aunt had caused her. Dr. O'Brien reassured and encouraged her and promised continued support whenever she needed it.

About two weeks later Dr. O'Brien received a call from Eunice stating that she believed Emily had died and asking if he could make a house call. On

arrival, Dr. O'Brien noted that Emily was indeed dead, but that she appeared thin and dehydrated, and that no feeding tube was in place. He stood silently for a few moments and noted Eunice seated silently at the table, her head in her hands. He stood quietly for a further moment, and then went to the phone and dialed.

"Hello," he said, "this is Dr. James O'Brien. Is this the Medical Examiner's Office? I'm at the home of the Johnsons, yes that's right, Miss Eunice Johnson. I want to report that Miss Emily Johnson has expired, yes, I've been attending her for several years. Probably a cardiac arrest of some sort, she's been an Alzheimer's patient you know, under the care of her niece, Eunice Johnson. Yes, I will sign the death certificate, OK, thanks."

With that, Dr. O'Brien went to Eunice and cradled her head in his arms for a long moment and said, "call John, I think he would like to hear from you now. I'll take care of the rest."

Questions:

1. What was the cause of death of Aunt Emily?
2. Did Eunice murder her?
3. What was the cause of death of Edna?
4. Did Eunice murder her?
5. Did Dr. O'Brien act ethically in his call to the Medical Examiner?
6. If Eunice murdered her aunt, was Dr. O'Brien an accomplice?
7. Was Eunice acting ethically if she refused to replace the feeding tube here?
8. Contrast Edna — retarded, PVS, feeding-tube-dependant, with no advance directives, with Emily — senescent-demented due to Alzheimer's, previous oral statement made of her desires in this situation.

9. If you were Dr. O'Brien and came upon the scene above with Eunice and her aunt's death, would you call the DA's office?
10. How far do the physician's responsibilities go in these circumstances? How deep is his loyalty to patients?

Tell us What You Think

The *WMJ* wants to know what recommendations you would make. Please send us a brief note with your thoughts to: State Medical Society of Wisconsin, Judith Burke, P.O. Box 1109, Madison, WI 53701, or e-mail your comments to: JUDITHB@smswi.org.

We'll publish a summary of the comments and the discussion from the SMS Commission on Medicine and Ethics in an upcoming issue of the *WMJ*.

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Guest Editorial

The Brave New Genetic World

by Arthur R. Derse, MD, JD

*O, wonder!
How many goodly creatures are
there here!
How Beauteous mankind is! O
Brave new world,
That has such people in't!*

William Shakespeare
The Tempest
Act V, Scene I, lines 182-185

Lately it seems as if genes are everywhere in the news. Dolly the sheep gave living proof that the concept of cloning animals had moved from the realm of possibility to reality and that cloning of humans had moved from the unthinkable to the realm of possibility. A \$295 test for breast cancer was offered by a commercial lab near Washington, DC, raising the possibility that the genetic counseling that should accompany the test might become merely a dealer option.¹ Dr. Sam Sheppard, the Ohio doctor convicted of the 1954 murder of his wife, and upon whom the TV series "The Fugitive" was based, may well be absolved of the crime posthumously on the basis of DNA evidence.²

Arthur R. Derse, MD, JD, is Associate Director for Medical and Legal Affairs at the Center for the Study of Bioethics at the Medical College of Wisconsin and is Associate Clinical Professor of Bioethics and Emergency Medicine at the Medical College. He practices emergency medicine at St. Joseph's Hospital in Milwaukee.

These headlines are merely the surface waves indicative of the significant developments occurring in the field of human genetics, heralding the emerging brave new genetic world. Genetics, though not a new endeavor, only recently has moved from a basic science to a medical specialty³ and gained the keys to unlocking the information residing on human chromosomes, mastering a technique that has accelerated this knowledge at an exponential rate.

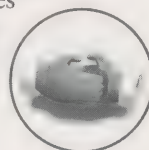
In Shakespeare's play, "The Tempest," the exclamation "O brave new world" was made by Miranda, Prospero's daughter, marveling at the creatures (including humans) on the island upon which she and her father were banished. The British writer Aldous Huxley gave the phrase its negative and ironic connotation in 1932 when his novel, *Brave New World*, described a nightmarish utopian civilization in the 25th century marked by mechanization, societal stratification, and in vitro fertilization and incubation. Given other important advances such as nuclear power, space exploration and information technology⁴, to call the nascent genetic revolution the beginnings of a brave new world may seem like hyperbole, but it is not.

Cloning got the publicity and the attention of the National Bioethics Advisory Commission (NBAC), the President and Congress, but there is another development that has much greater implications for the future of humanity than the issue of cloning. Geneticists and molecu-

lar biologists recently convened at the University of California at Los Angeles to discuss the implications of germline genetic therapy, i.e., making changes in the genes of humans before conception and in the process, affecting the path and outcome of human evolution.⁵ The ability to map the human genome and to make changes in it will have profound implications, affecting concepts of who we are and who we will become.

The recently expanded knowledge of genetics has been brought to us by the genetic advances of the scientific community worldwide and by the federal government by way of the Human Genome Project. Begun in 1990, the U.S. Human Genome Project is a 15year effort coordinated by the National Institutes of Health (NIH) and the U.S. Department of Energy (DOE) to identify all the estimated 80,000 genes in human deoxyribonucleic acid (DNA), and to determine the sequences of the three billion base pairs that make up the 46 human chromosomes. This information is stored in databases, and tools are developed to analyze the data. Over 6,000 genes have now been mapped to particular chromosomes.^{6,7,8} The entire effort is estimated to cost \$3 billion, or a dollar per base pair.

Scientists are mapping the genome using a technique known as polymerase chain reaction (PCR) resulting in the in vitro synthesis of large amounts of a target DNA sequence, which in turn undergoes a process of



exponential synthesis (amplification) allowing large amounts of the original DNA sequence to be generated and analyzed.⁹

Knowing the sequence of the human genome does not mean knowing human genetics. Most of the base pair sequences, about 95% of the genome, appears to be nongenic, i.e., they do not store genetic information. The remaining 5% of the genome that contain the genetic information are the needles in the genomic haystack.

Genetic tests may identify the presence of the gene itself or may test for "markers" that are linked to the gene. Gene markers have less than a 100% correlation. For example, BRCA1, the first gene defect marker identified for susceptibility to breast and ovarian cancer puts women at greater risk for premenopausal breast cancer, with a 59% chance of developing the disease before

the age of 50 years. The gene mutation is also identified with a 44% risk of ovarian cancer by the age

of 70 years.¹⁰ However, knowing that a woman has the marker does not mean that she will get the disease, and of course, knowing that a woman does not have the marker does not mean that she will be free of the disease.

Many diseases are polygenic, the result of a complex interaction of genes. Additionally, many diseases with genetic components have a variable expression which is dependent in part upon environmental factors. Nevertheless, information gleaned from the Human Genome Project and other endeavors has identified genes and markers causative of a host of diseases such as Huntington's disease, TaySachs disease, cystic fibrosis, colon cancer, breast cancer, hypercholesterolemia, Alzheimer's dementia, and glaucoma.

The information being discov-

ered and the tests and procedures that are under development bring physicians and patients wondrous new possibilities for diagnosis and treatment coupled with disturbing ethical and legal concerns. The genetic technologies in rough order of their distance on the horizon include:

1. Screening for existing disease and predisposition to disease, allowing treatment or prevention where possible. Individuals who have a gene that predisposes to colon cancer might have more frequent screening and procedures such as colonoscopy to identify the disease than those not so predisposed. Dr. Francis Collins, the director of the NIH Human Genome program predicts that in the near future physical examinations for 18-year-olds will include DNA testing for diseases with genetic components and that physicians will make risk-based recommendations for preventive measures.¹¹
2. Diagnosis of diseases (both manifest and latent) in the individual that may be transmitted genetically to offspring, with counseling directed at prevention of transmission. Reproductive genetic counseling will become much more informative and disease specific. In addition, prenatal genetic testing will become more accurate.
3. In vitro genetic diagnosis, known as preimplantation genetic diagnosis (PGD), which involves genetic testing from a single cell of a microscopic embryo created via in vitro fertilization.
4. Genetic therapy. The treatment of diseases at the genetic level in individuals born with disease and in the developing fetus conceived with the gene. At present, genetic therapy is available for very few disease

entities.

5. Cloning. DNA transfer from a human somatic cell into the nucleus of an egg cell whose DNA has been removed. The cell becomes an embryo, which is transferred into a surrogate mother, where it continues to develop. This embryo has the same DNA (though not the same mitochondrial DNA) as its only "parent." Professor John Robertson of the University of Texas Law School has called this process "replication" rather than "reproduction."
6. Germline genetic engineering. The process described above of making changes in the genes of humans before conception by repairing defects and inserting or crafting new genes, controlling not only human reproduction, but eventually, human evolution.

These new genetic technologies may be wondrous, but may not necessarily be wonderful. Most of these new and developing capabilities in diagnosis and treatment raise understandable concerns about their ethical, legal and social implications. Some of these concerns are the subject of study by the U.S. Human Genome Project's Working Group on Ethical, Legal and Social Implications (ELSI) of Human Genome Research.^{12,13} This working group is unique in that the U.S. Human Genome Project is the first large scientific undertaking to address these issues. Three percent of the U.S. Human Genome Project budget is dedicated to the ELSI working group. The ethical issues of cloning have been addressed by the National Bioethics Advisory Commission (NBAC) at the request of the President.

The major concerns generated by the new genetic technologies include these:



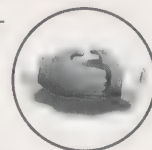
1. The paucity of available prevention and treatment for genetic disease. Should testing be performed when no treatment or prevention is available? What will result from individuals learning this information? Nancy Wexler, a clinical neuropsychologist and former president of the Hereditary Disease Foundation in Los Angeles and whose mother had Huntington's disease, has publicly described her quandary as she considered whether to take the test for the Huntington's disease gene. (She originally said she would do so, but later said she had decided not to take the test, since knowing she was negative would not make her much happier, and knowing she was positive would make her very unhappy.)¹⁴ What kind of stigmatization will occur for those who are diagnosed as genetically disadvantaged?
2. The availability of prenatal genetic testing without available treatment. This will not assuage the concerns of those morally opposed to abortion. Since few of the genetic diseases identified prenatally can be treated in-utero, the information, often expressed in probabilities rather than certainties, will in most cases result in another ethically-freighted decision as to whether to continue the pregnancy.
3. The shift in the concept of disease. Consider these two cases: An individual who has the Huntington's disease gene but has not yet developed symptoms. A woman who has the BRCA1 gene who requests prophylactic mastectomy to prevent the possibility of breast cancer. Does either individual have a disease? In

the first case, the disease is almost certainly inevitable but not yet manifest, in the second case the development of the disease is more likely than chance, but not close to certainty. Will "probability toward developing disease" become conflated with our concept of disease itself? How will we define normal and abnormal?

4. Confidentiality of genetic information. Experience with HIV testing shows that keeping sensitive information confidential may be difficult, and in some cases, competing interests such as public health concerns or duty to warn third parties may counterbalance the duty of confidentiality. How will confidentiality of genetic information be maintained and when, if ever, should it be breached? Who owns and controls the information? In Wisconsin, state law prohibits disclosing genetic information without the consent of the individual.¹⁵
5. Consent for genetic testing. What information should be disclosed before genetic tests are done? Should pre-test and post-test counseling be mandatory? Should counseling be directive (e.g., the counselor makes recommendations) or nondirective? Should parents have the right to have their minor children tested for diseases that may have their onset in adulthood?
6. Discrimination in employment. Should employers be able to screen for conditions that would predispose workers to occupational illness? The Council on Ethical and Judicial Affairs of the American Medical Association found the practice generally inappropriate, except in the case of limited cases of rapid disease progression because of rare

genetic susceptibility and cost burdens of toxic substance removal, with requirements of accurate genetic testing and informed consent.¹⁶ Though the federal Americans with Disabilities Act prohibits employer discrimination on the basis of disability, there is a question as to whether genetic susceptibility to workplace-induced disease is a disability. By Wisconsin law, employers may not require genetic tests of its employees.¹⁷

7. Discrimination in insurance underwriting. Both health insurers and life insurers make determinations of whether an individual is insurable and how much that insurance should cost by using the individual's health history and physical examination to estimate the risks of disease and death. If an individual knows more genetic information about a predisposition to disease than the insurer, and does not disclose this information, the insurer will underestimate the costs of insuring the individual, and the individual will not be paying the true cost of the risk of disease or death. This phenomenon is termed adverse selection. Should insurers have access to genetic information? There are policy reasons why health insurers may be treated differently from life insurers. As opposed to life insurance, health insurance in some circumstances is not individually underwritten. Health insurance, though not a legal right, may be seen as more of a necessity than life insurance. Wisconsin law does not allow health insurers to require any individual to reveal the results of any genetic test,¹⁸ though there is no similar provision for life insurers.



8. The danger of the reduction of human beings to their genetic inheritance. The new genetic technologies have given new fuel for the fire in the nature versus nurture controversy. As we learn more about our genetic legacy, will a new genetic determinism hold sway? Interestingly, the answer is far from certain. Genetic sequencing appears to show that the concept of race is at least as much a human construct than a genetic one, and mitochondrial DNA studies suggest one distant human ancestor of us all. Jared Diamond in his book, *Guns, Germs and Steel*¹⁹ argues that the course of history of different populations has been more dependent upon environment than biological and genetic differences. Genetic legacy is not destiny.

9. Ethical issues of human cloning. Soon after Dolly's unveiling, the National Bioethics Advisory Commission (NBAC) was asked by President Clinton to issue a report on the ethical implications of cloning.²⁰ The report, based on safety concerns, recommended a Congressional ban on all somatic cell nuclear transfer with the intent of creating a child. The President took these recommendations and proposed legislation to enact a ban for five years. After Dr. Richard Seed, a Chicago scientist, vowed to open a human cloning clinic, Republican-sponsored legislation to ban human cloning without exception or duration was defeated 54-42 in the U.S. Senate. Nonetheless, it is expected that legislation that may pass Senate muster will be forthcoming.

Some scientists maintain that a ban would hamper

research that could potentially save lives, arguing that the Food and Drug Administration, which says it has jurisdiction over cloning based on safety and efficacy rules, should handle the decisions on a case-by-case basis.²¹ Other critics charge that NBAC, by recommending a moratorium on the procedure based on safety issues, begged the question of the ultimate ethical judgment about the procedure should it prove safe,²² unfairly singled out cloning as a scientific procedure,²³ and deprived the larger community of important scientific information.²⁴

10. Germline genetic engineering. Some have said that there the Human Genome Project poses no new ethical questions, but on its face, this new possibility of germline genetic engineering raises a new ethical question: If we can change the fundamental genetic structure of who we will be, who ought we to become? At the recent UCLA genetics conference, John Fletcher, former chief of bioethics at the National Institutes for Health and professor of biomedical ethics at the University of Virginia, said he saw nothing intrinsically unethical about germline genetic engineering, though he was troubled by the idea of adding genes for certain complex traits like "emotional stability."²⁵ The ability to map the human genome and make changes in it will have given humankind another Promethean fire which will affect human evolution in profound and unpredictable ways. However, to some the hubris of humans engineering their own DNA may suggest Icarus more than Prometheus.

Physicians owe it to themselves, their patients, and society, to learn about the new genetic technologies and to become knowledgeable about their far-reaching consequences. If Dr. Francis Collins' prediction is accurate, genetic testing and counseling will soon become a routine part of the practice of primary care physicians. The ethical, legal and social implications of the new genetic technologies should be openly discussed by physicians. The brave new genetic world is fast upon us. The medical community must be prepared for it, and must participate in society's choice as to whether the brave new world will be the marvelous vision of Shakespeare's *Miranda* or the mechanistic nightmare of Huxley.

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Guest Editorial

Update on Genetic Dilemmas

by Daniel L. Icenogle, MD, JD

Editor's Note: The following was presented to the SMS Commission on Medicine and Ethics at their March 13 meeting and is reprinted here with Dr. Icenogle's permission.

As we amass an increasing amount of knowledge about our genetics, about our predilections for certain diseases and other outcomes, and as we develop technology that can begin to impact on our genetics, issues begin to arise about the propriety of using what we are beginning to understand. Leaving aside theological issues, which I am not competent to discuss, many ethical issues remain. This brief paper is meant to introduce some of these issues and present some analysis of them. It is by no means meant to be a dispositive discussion, but is only meant to engender some thinking by the medical community.

Cloning

Although cloning has been the subject of science fiction for years, it has received a great deal more attention since Dolly, the cloned sheep, was reported in Scotland. Dolly was created by a technique known as nuclear transfer, in

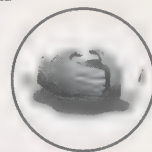
which a cell from an adult sheep was placed in the cytoplasm of a second animal's cell and was then induced to begin differentiation into a mature sheep. Since Dolly's birth, a great deal has been written about cloning in both the lay and medical press, most of which has been negative and little of which looked at cloning seriously. This type of response only increased when a physician in Chicago claimed he was prepared to clone a person. It seems that cloning is an issue that most of us respond to at a gut level as being a bad thing. As a result of the negative response, President Clinton has declared a moratorium on the use of federal funds for research into human cloning.

However, there appears to be more hype about cloning than real cause for concern. If one evaluates cloning as objectively as possible, and focuses only on the issue of cloning itself, it soon appears to be nothing more than a means to procreate. Over the past generation, rather amazing technologies have been introduced to provide for procreation when the old fashioned methods are inadequate. Cloning can be seen, and perhaps should be seen, as a unique procreative technology. In fact, many humans are created by cloning, and these are even more truly clones than Dolly is, for they have complete genetic identity, including mitochondrial DNA. These are, of course, identical twins. We tend to see nothing evil or immoral about twins, even cel-

ebrating their identity by dressing them alike, remarking at their many behavioral similarities and studying them to demonstrate the effects of human genetics on personality. But for some reason most of us have a significantly negative reaction to cloning telling us it is somehow wrong.

At least two types of moral issues have been raised, both of which revolve around the fact that cloning recreates a single individual's genetic identity. One is that cloning may represent a lack of respect or reverence for the mysteries of life. Put another way, is the recreation of one's genetic identity an act that respects God, or is it playing God? One response is that the individual who is cloned was the result of that mystery and the act of cloning carries on the same result. Another is that given the fact that cloning is biologically possible, and therefore God created the possibility, we should be permitted to take advantage of that possibility in appropriate ways.

A second moral issue is whether cloning oneself is the ultimate act of egoism. Is the act of cloning oneself an attempt to claim that your personality, your identity, is more valuable than another's? While it may be a legitimate question, this would appear to be more of a political question than an ethical one. We rarely question whether a decision to procreate in other ways, even the decision to have numerous children, is an issue of egoism.



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I believe that the real issues presented by cloning involve not the cloning itself, but the purpose of the cloning. Cloning may be ethically neutral, but the ends to which it is used may be ethically positive or negative. One purpose, as stated above, is to procreate and, as stated above, I do not believe that cloning to procreate creates any ethical issues not presented by the use of any other reproductive technology to procreate. However, cloning may be used for purposes that may be more problematic. One is the situation wherein someone clones his or her self in order to obtain transplantable tissue. This is similar, in a moral sense, to the decision by parents to achieve a pregnancy in order to obtain tissue, such as bone marrow, for transplantation into another child. The risk is that the new child, or the clone, is made only as a means to another end, and not loved, appreciated and respected as an individual in his or her own right.

Another potentially problematic use of cloning is to replace a lost family member, particularly a child. Again, the concern is that the clone will not be respected as a new individual, but will instead be seen as the reincarnation of someone else. The science fiction of cloning is that it can produce multiple copies of a particular personality or a particular person. This fear ignores the effects that environment and experience have on the development of personhood.

Much of what has been written about the possibility of cloning a human being seems to ignore the fact that clones are people, too. The discussion seems to dehumanize them, as if the speaker were visualizing a massed army of identical automatons. Simply being genetically identical to another person does not alter the

fact that a clone is a unique person in every ethical and legal sense. Clones will not be property, nor is it possible for the one who was cloned have any special rights or privileges over the clone.

Another issue involved with clones, but which is again separate from the question of cloning itself, is research into human cloning. At its base, research into cloning is embryo research. Embryo research raises many ethical issues, regardless of whether the embryos available for research are created in the old fashioned, petri dish way, or by newer cloning technologies. The ethical dilemma confronted by embryo research is the possibility that an embryo that is otherwise capable of developing into a person will be experimented upon and then destroyed. If the embryo is created only for research purposes, then a person, in some sense of the word, is being created only for the benefit of others and then destroyed, denying to that person the respect and autonomy we guarantee others. These concerns are not implicated when the embryo research, as is often the case, is done on an embryo that has failed to develop normally, hence having no possibility of full development. It was due to this type of concern that President Clinton banned the use of federal funds for embryo research until federal guidelines outlining the limits on such research could be developed. Proposed guidelines have been promulgated, but remain on the shelf. Research on embryos created by cloning raises no additional issues, but implicate the same concerns.

Genetic Information and Privacy

As we begin to understand of the relationships between genetics and disease, more of what may be called genetic information is being

recorded in medical charts. While it is true that much information related to genetic predisposition to disease, such as family histories, have been present in charts for a long time, laboratory results and other material with greater predictive power, hence of greater interest to insurance companies and employers, are now being added. In addition, and probably of greater risk, is the increasing amount of tissue and blood being repositied in various sites and remaining available for evaluation, some of which remains identifiable. As a result, we are at greater and greater risk of entities obtaining genetic information about us without our permission or knowledge, thereby obtaining information about disease predilection and other individual data. Therefore, increased protection of genetic information has become a focal issue for custodians of medical records and the management of tissue repositories.

The first step in grappling with privacy and genetic information is to define "genetic information." Some definitions are overly broad to the point of having no utility, while others are so narrow as to exclude critical information. Family history of a disease is, to some extent, genetically-based information, but to include it with genetic information which is protected would not only be overly broad, but probably impossible. On the other hand, the Wisconsin state law that limits the ability of health insurance companies to mandate genetic testing or seek the results of testing defines genetic information as "DNA," obviously too narrow a definition. One definition which maintains a high degree of utility, while being sufficiently broad, is "the analysis of or material containing DNA, RNA, chromosomes, proteins or metabolites which might act as or identify markers associated with a



known or suspected predisposition to disease."

Medical Records

A great deal of screening for a genetic predisposition is being done presently, particularly prenatally and in the newborn period, for such genetic disorders as trisomies, hypothyroidism, PKU, and galactossemia. Increasingly, risk screening is becoming available to determine carrier status and the risk of disease later in life. Included in this latter category are screens for Huntington's, colon cancer, heart disease, Alzheimer's, breast and ovarian cancer, ataxia-telangiectasia, melanoma, pancreatic cancer, and Lowe's syndrome. It may soon be possible to screen for risk of schizophrenia, manic depression and AODA. The list, of course, will keep growing. Although some of these conditions are related to single gene abnormalities, and the presence of the dysfunctional gene results in near certainty that the disease will appear, genetic testing that reveals only a predilection for disease is becoming increasingly common. The BRCA-1 gene, related to breast and ovarian cancer, is indicative of an 80% chance of disease. Certainly a significant risk, but not certainty. Others indicate risks of much lesser magnitude. As medical records begin to contain increasing amounts of genetic information about the possibility of disease prior to the reality of disease, much greater security on release of this information to protect the confidentiality of both those who will develop disease as well as those who will not is needed.

Add to this mix the efforts that are beginning to be made to develop a national health information database. President Clinton included smart cards in his 1994 health plan that would include health information on a chip in a

health identification card that we would all carry with us. Recently, the National Library of Medicine provided a grant to Sequoia, an information system company, and Microsoft to begin work on development of an on-line medical information system, the end result of which is to be a nationally-accessible health record system. The hope is for a health information system that could be accessed wherever the patient is located, so that full and complete health records are available regardless of whether the patient is traveling or has moved. The concern is that sensitive information, such as genetic predilections, will be available on-line, protected only by whatever security systems are installed. The hackers who recently entered the Pentagon's computer demonstrate that many computer security systems, perhaps all, can be breached.

Genetic Databases

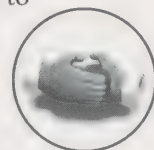
Many databases exist around the country, some containing only data, while others contain tissue. In some, the data or material has been rendered non-identifiable, perhaps retaining only demographic information, so that the source person can never be identified or contacted. In others, however, the purpose is to maintain the ability to contact the source, so identifiers remain connected with the tissue or data.

There are several large national databases, as well as numerous smaller ones. Nationally, the NIH maintains a database of tissue for cancer research, as do the several regional oncology research groups. The military maintains a large database of blood from all personnel, ostensibly to allow for identification of remains. However, the custodian of that database has made the material available for researchers. A huge database consists of the dried

blood spots taken at birth for testing of congenital disorders. Several states maintain their collections of Guthrie spots for years.

There are numerous benefits for patients who undergo appropriate genetic testing and for maintaining these databases. Information about genetic carrier states can inform patients about lifestyle and reproductive decisions. Many genetic predispositions are just that, a predisposition that then may remain amenable to the influence of dietary or other lifestyle alterations. Moreover, early and frequent screening of several types may be too expensive or difficult to do on a population-wide basis, but can be done efficiently if a small, at-risk population is identified. Eventually, genetic treatment will be available, so that those with high-risk genes can have their genes altered to ameliorate the risk. With large-scale genetic databases, the improved disease tracking and predictive power possible would aid public health medicine. Also, the databases greatly aid the research into the causes of genetic-based disease and cancer.

On the other hand, disclosure of genetic information could be catastrophic for an individual. Genetic information about risk of disease could be the basis for the loss of employment, housing or insurance. This could result either from the real risk of disease, or from the many common misperceptions that accompany genetic information. Socially, there is the risk of stigmatization, again either from real or imagined meanings given to the results of genetic testing. Often, the perception is that genetic predispositions are much more controlling of a person's health than is really the case. For the individual, there is the fear of the disease or addition, as well as the fear that what is really a risk is



predetermined.

There are limitations on disclosure of medical records that serve to protect from some of these risks. The question is whether genetic information, with the greater risks associated with its disclosure, should receive the benefit of greater restrictions on disclosure than more routine medical records and, if so, what restrictions. A few states have statutes dealing with genetic information. All are limited in some way, frequently dealing with only specific genetic tests, types of screening programs or limiting only particular uses of the information. The Wisconsin law demonstrates another type of limitation, the failure to include a wide enough range of information.

One problem encountered when a state elects to protect a portion of the medical record, is the inclusion of enough of the record. This special status, seen with HIV testing in most states, provides that certain records be released only under special circumstances. The problem is deciding what is to be so protected. Even with HIV testing, the statute governing release of HIV testing information in Wisconsin controls the release only of the actual positive or negative results, but not such things as test results of P24 antigens, T cell counts, treatment for ARC and AIDS related diseases, etc. Genetic information or evidence of it may even become more thoroughly inculcated within the record.

What is the solution? One that has been proposed is to elevate the position of medical records keeper to a plain of higher status and authority — and greater responsibility.¹ The presumption could change from one of favoring release to non-release, with the onus on the requester to make a

strong case that any information should be released. This will encumber the transfer of information, thus hindering several of the benefits driving the change towards greater on-line accessibility. Another option, perhaps less satisfactory, is to accept that a loss of privacy is inevitable should we wish to achieve the benefits available from screening tests and databases.

Genetic Risk and Health Insurance

As we are increasingly able to test for genetic predispositions, the question of what to do with the information that a predisposition exists arises. Already discussed was the possibility that knowledge of the risk may lead some to alter other risk factors. Another possibility is that predispositions present so great of a risk that people seek prophylactic treatment based on the predisposition — prior to the disease being clinically apparent. Therefore, they are not treating a clinically-apparent disease, but treating to prevent disease — and, in some cases, disease that may not ever occur. Then a question is whether insurance should pay for the treatment.

Typically, insurance pays for treatment that is medically necessary to treat disease. So, is a genetic predisposition to disease a disease for this purpose? Is, for example, a prophylactic mastectomy medically indicated if the woman has BRCA-1 gene giving her a risk of 80% of developing breast cancer? If so, what of a genetic predisposition with a risk of 50%? 25%? What if the disease is not life threatening?

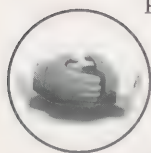
How do you define risk? Predispositions infer two different types of risk. One is the lifetime risk — what is the risk over a lifetime of incurring the disease. The second is the current risk — what is the risk currently considering

the patient's age and whatever other risk factors exist.

If the decision is to define genetic predispositions as disease for the purposes of insurance coverage for prophylactic treatment, is it then possible to define a genetic predisposition as a pre-existing condition? Indeed, what is the "condition?" Is it the gene or the marker itself that has been associated with the occurrence of the disease? Or is it the risk of the disease? If the former, does it then exist from the time of the establishment of the genetic make-up of the individual or from the time of the discovery of the gene or marker? If the latter, what risk measurement, lifetime or current? What level of increased risk is significant? Perhaps when it becomes greater than background risk?

Prenatal Genetic Testing

Prenatal genetic testing has allowed parents the freedom to choose whether to raise a child with any of a variety of genetic abnormalities. In the typical case, the technology has been a tremendous addition to our ability to control our reproduction. But should the uses of the technology be limited? Should parents be unfettered in their decision to screen and use the information gained from screening, limited only by laws on abortion? An example, suggested by Dr. Norm Fost at the Program on Medical Ethics at the University of Wisconsin, is whether a pair of deaf parents, both with a form of congenital deafness, should be permitted to screen their child prenatally for the deafness gene in order to abort a "normal" child because they only want to raise a deaf child? In all good intention, they feel that the "disability" of deafness is a positive thing in that it requires the development of other senses to an extent not seen



otherwise. Moreover, they do not want to have different levels of ability among their children. Do we permit this type of parental autonomy, or do we permit screening for only the "good" reasons?

It is obvious that the technology of genetics is outstripping our ability to understand it and to understand how we may or may not want to use it. The result is many more questions than answers. This is not unusual in the history of medicine and science. It is often only after we have had a technology for a length of time with the opportunity to misuse it frequently that we begin to understand what we should not do with it.

What should physicians be doing now? First, understand the issues of genetic privacy and the concerns that patients have — or should have — over the availability of genetic information. Most surveys of individual's attitudes towards the collection of sensitive information reveals a lack of awareness of the risks the collections and a belief in their security. We must also understand the need for caution both in charting and in the release of records.

Second, physicians in primary care have got to understand genetics and the mathematics of risk. Generally, we, not just physicians, but people generally, do not understand what a certain degree of risk really means. Physicians must come to understand this material and be able to impart it to their patients.

Brave New Genetic World *Continued from p. 22*

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Genetic Testing

Harbinger of Hope or Landmine in the Medical Landscape?

by Marc Kennedy, Special to WMJ

The science of genetic testing is still relatively new, but it is advancing remarkably fast. Thirty years ago the promise of looking into a person's chromosomal structure to determine the potential for developing specific medical conditions was a fantasy, the stuff of science fiction films and futuristic novels.

Today, even the experts are stunned by the rapid progress scientists are making, particularly concerning the Human Genome Project — on course and under budget some say — for completing a map of the genetic landscape of *Homo Sapiens* by the year 2005. This both amazes and worries those who work in the field of medical genetics.

On one hand, it astonishes them that in a relatively short time the entire spectrum of human genetic code — 100,000 genes in all — will be identified. But on the other hand, it concerns them that so little is being done to prepare for the results of this endeavor and the capabilities, opportunities and demands it will place upon health care delivery, the legal system, and the personal lives of every citizen.

“Historically, we’ve been concerned with single gene determinants of disease,” said Richard Pauli, MD, PhD, University of Wisconsin Medical School professor of pediatrics and medical genetics, “such as those that cause phenylketonuria (PKU), sickle cell

disease or achondroplasia. These aspects are relatively easy to counsel patients about.

“But within a decade, we will have mapped the entire human genome. This will raise a number of challenges for us,” added Pauli, who also directs the Clinical Genetics Center. “We will be faced with disorders with complex causes and multiple genetic determinants. Plus, there are environmental aspects and causes that haven’t even been considered yet.”

The prospects for an entirely new array of genetic tests just beyond the horizon offer both the promise of new therapeutic approaches as well as the prospect of serious problems if the social and economic considerations do

not keep pace with the scientific, including educating physicians, counseling patients and having access to such services. Such forward thinking requires an entirely new mind-set concerning the delivery of health care, which, to the experts interviewed for this article, is not apparent now nor likely to occur in the near future without drastic realignment in today's health care delivery system.

Land Mines in the New Medical Landscape

This is a whole new medical landscape, according to Mark Lubinski, MD, professor of pediatrics at Medical College of Wisconsin, "and it has a lot of land mines buried in it."

Part of the challenge, said Lubinski, who directs the Genetics Center at MCW, is helping patients understand the nature of this form of testing.

"Genetic testing is more than just a better test," said Lubinski. "It's part of a different way of doing medicine that we are not used to. People understand getting a blood test, and getting results of their current condition to answer questions such as, 'Am I sick? What do I need to take?' etc. But genetic tests are predictive or risk tests. 'In 20 years, you will likely have 85% chance of getting a breast lump.' It's getting so we can test for conditions decades before there is any problem. People aren't used to dealing with this model."

Neither, added Lubinski, are most health care clinicians.

"How do you deal with this type of information? What mechanisms do we have for putting in place therapies that are pre-symptomatic? To help patients address risks far down the line? All of us floss our teeth daily, right? Wrong. We don't, even though we all know it is good for us.

"Plus, what do you do with information that may be relevant to family members in 20 years? Set up an appointment for July 6, 2016? Maybe so. That's the whole point, though. We don't know yet how to approach these issues. And, how do we deal with implications for large family, for people who are not going to be born for 30 years? These dynamics raise so many more questions than there are answers currently."



Who Will Do the Counseling?

Lubinski says genetic counselors can help fill this gap.

"They are masters level professionals trained to give scientific information and deal with psychological and emotional issues that go along with genetic testing," he said. "And, they are very good at it. But because this is a relatively new profession, many doctors don't know how to use or even find them."

Primary care physicians can use counselors in a variety of ways; staff them in-house, or refer patients to them.

"We have five counselors in our center," said Lubinski. "They often see patients without my direct involvement. I'm available

as a resource, but in many cases I'm not needed. They can be of great help in working with genetic testing and other issues; explaining complex concepts can be very time consuming for a physician."

He added that initial visits to counselors at his clinic are typically covered by insurance, but additional consultations may not be. Still, with more genetic tests seemingly becoming available every day it will strain the overall medical delivery system that is currently ill-prepared for such an onslaught.

To put it simply, said Pauli, "the technology at our disposal goes beyond our ability to use it currently. First of all, we can't possibly afford to test everyone for everything. It just is not feasible or practical."

What needs to happen he says is to develop criteria that health care professionals can use to advise patients, which segues into the next major point — availability of trained professionals to counsel the public about the pros and cons of genetic testing.

"If we don't make professionals trained in genetic counseling available and help cover costs through health insurance," Pauli continued, "then family and general practitioners and pediatricians de facto will be on the dime to provide rational counseling to patients for these tests."

Education Required Across the Board

Pauli and his colleagues say that they don't believe many physicians being placed in this position are adequately prepared currently to fulfill this role. At this point, he added, there are an overwhelming number of unanswered questions that even genetic specialists cannot necessarily answer.

"What are the prospects for saying that this series of loci of genetic mutations in conjunction

with certain occupational hazards will produce a specific level of susceptibility? Can we look at this rationally and be able to say 'these are the hazards?'" asked Pauli. "And then, who can we exclude from access to this information? Or to include?"

But a more fundamental question is who should be doing the counseling, and furthermore, who chooses who does the counseling? In a perfect world, said Pauli, as more information from genetic testing is available, so too would the corresponding ability to provide counseling to help interpret the test results.

"The best option would be to have a whole cadre of masters-level trained genetic counselors. Thousands of them. And make their services reimbursable," he said. "Of course, to do this, you have to restructure the health care system. The genome project is on schedule, under budget, the scientific capabilities are advancing. The health care system needs to evolve as well."

However, there is no mechanism to pay for this degree of counseling, and not enough trained professionals to meet such a need.

"There are too few jobs now for those who are trained. We could over a decade be training counselors in sufficient numbers, if there was a commitment. It certainly is possible. But, of course, there are practical realities."

The most practical of all is obvious: Just who would pay for this commitment to ensure that genetic counseling needs keep up with scientific advances in genetic testing? There lies the rub.

Who Will Pay for the Counseling?

Pauli and associate David Wargowski, MD, UW Medical School clinical geneticist and associate professor of pediatrics, were

asked if there were any similarities about the growing need for genetic counselors now and the emergence in the last decade of physicians assistants and nurse practitioners. Could genetic counselors assume greater roles in supporting practices as these specialists have and be covered under the same umbrella when it comes to reimbursement and accessibility?

Pauli agreed that there was somewhat of an analogy, but with a significant difference.

"PAs are used for direct, hands-on patient care. A counselor would differ in that they are solely cognitive. With hands-on patient care, there are more measurable parameters, which trans-

"If this technology is going to benefit society, we need to be responsible, to guarantee access. The potential misuse is highly probable otherwise. It doesn't have to be this way. This era of genetic testing can tremendously benefit society."

— David Wargowski, MD

lates into 'it's easier to identify as a billable procedure.'"

The manner in which health care entities are currently designed regarding reimbursement patterns does not make incorporating genetic counseling an easy task.

"HMOs and managed care organizations don't have the wherewithal presently to deal with this," said Wargowski. "Of course they could build it in. But I don't see that happening in the near future, which is the crux of the problem."

While the health care plan Lubinski is affiliated with covers some of the visits with genetic counselors, there is a significant amount of time spent on these issues that he and his counselors exert for which there is no compensation. He said it is the nature of the HMO system.

"Genetic testing and counseling has fallen neatly into a crack between traditional medicine — caring for individual patients and treating their problems — and public health at the mass level.

"This raises the question, who's responsible for dealing with this? It isn't clear. There is no policy, no directives. Is it the individual family doc, or is it up to public health officials? We have to decide, who is responsible?"

Pauli said that there are three basic options in addressing these issues concerning genetic testing and counseling and how professionals should proceed:

- Is it a public health issue? If so, we need to support it with public funds.
- Is it an individual issue? If so, then family physicians and pediatricians need to be brought up to speed in order to address needs of patients concerning pros and cons of genetic testing. Counselors have to be trained and made available. This would be up to HMOs and managed care organizations.
- Or, we can always do nothing.

"Which is what we are doing now," said Wargowski. "We can let the market rule and allow private labs to do what they want



and perpetuate public ignorance. This is the default pathway we are on right now."

Pauli concurred with Wargowski. "This is happening right now. Some labs are offering genetic testing now without any counseling and lord knows how the information will be used. This does two things: it increases the potential for misuse and misinterpretation. It virtually guarantees a multi-tiered system of health care. The haves will have access to testing, and the have-nots will not.

"Only the most intelligent, well-to-do, and motivated will have access to genetic testing. If we leave it to the marketplace, we have already pre-selected who will receive benefits of genetic testing. Smart, well-connected and aggressive people are already doing it. And, these are also the people most likely to be harmed by inappropriate testing, inadequate counseling, erroneous results, etc."

"We are very concerned about access," said Wargowski. "If this technology is going to benefit society, we need to be responsible, to guarantee access. The potential misuse is highly probable otherwise. It doesn't have to be this way. This era of genetic testing

can tremendously benefit society."

Pauli related a scenario that he said he believes accurately portrays the circumstances surrounding medical genetics.

"Fifteen years ago, before the Human Genome Project began, a molecular geneticist predicted the ultimate mapping of the human genetic code. He said that in two decades, he envisaged a huge book. On each page would be a particular genetic locus, and within described significant variations within the population, harmful mutations, diseases caused, etc.

We would have this encyclopedia of the human genome. I realized that this book should have two sides on each page. On one side these disorders and diseases should be listed. On the other side, would be how to use this information effectively and efficiently: deciphering what the results mean; how to treat and prevent these described conditions; how to counsel families and patients. This is what's missing. This is where we have been remiss.

"There is a lot of information on the scientific identification side of the page; the human genome people have been far ahead," Pauli

concluded. "The other side of the page? So far, the other side is blank."

The Greatest Danger

To Pauli, that blank page poses a significant challenge in the next two decades.

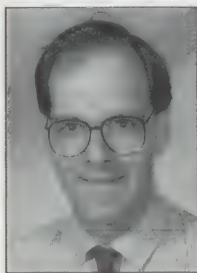
"That is the greatest danger in my view," he said. "We're offering testing without commitment to follow-up and knowledge of what to do once the test comes back. It's going to get worse rather than better unless something else is done.

"The only way to generate proper information is to record comprehensive medical histories of patients," continued Pauli. "In the current state of health care delivery, vertically-integrated, closed-system HMOs are not geared to record and use this type of information, and provide the counseling patients require to address genetic testing. I see why some physicians are almost throwing up their hands, saying 'why bother?' — with knowledge of the human genome increasing and the way health care is going, we don't see how we can develop the capability to fill these blank pages."

Continued on p. 37



Richard Pauli, MD



David Wargowski, MD

Testing the Genetic Waters

by Marc Kennedy, Special to WMJ

Completing the Human Genome Project within the next decade will likely be considered a monumental scientific accomplishment. But to the clinicians who are treating patients and counseling them on the benefits and caveats of genetic testing, the project represents only part of a picture that is far from complete.

"The genome project is just a step, a starting point," according to David Wargowski, MD, medical geneticist and pediatrician at the University of Wisconsin Medical School. "We need to do so much more — investigate how genes interact with one another, factor in environmental effects; we need to do epidemiological studies, examine cellular protein chemistry, physiology and biochemistry of gene action; conduct animal studies. We need to know more about the sequencing of genes, of genotype and phenotype. We need to understand why two people with the same gene mutation may have very different outcomes from one another."

Before Wargowski and his colleagues can begin to think about reaping the benefits of the such a wealth of information that the Human Genome Project will offer, they know that the health care delivery system as it operates today will need to change substantially if the patient public is to realize the potential benefits of this information.

"There is not much that is useful clinically now," he added, "but this is changing. We encourage physicians to start learning about

this today, and how genetic testing may help or harm patients. They should begin thinking about this within their own practice. How will they ensure that families get the right information they need to make decisions about genetic testing?"

Start Planning Now

Wargowski said general clinicians and family physicians should start planning now, taking the time to consider how to build appropriate aspects of genetic testing into their practices. Though the genome project is slated to conclude in 2005, more and more genetic tests are becoming available all the time, and patients are going to want information about them. A laboratory may be able to conduct a test, but it is unlikely that it will provide the counseling services necessary to properly prepare its clients for the results, or in considering whether they actually want the test done in the first place. There is a risk that patients and their families may be getting inadequate or inaccurate information or may misinterpret results unless they have access to genetic counselors or trained physicians.

One of the difficulties of genetic testing concerns the nature of how physicians have been trained.

"For most doctors, typically more knowledge is better," said Mark Lubinski, MD, professor of pediatrics at Medical College of Wisconsin, and Director of the Genetics Center. "More information will help them properly diagnose a condition. Therefore, there

is a tendency to do more tests if you can. But I'm not sure these tests are necessarily always good when it comes to genetics. Sometimes we don't have clear idea of what test results mean and what to do with the information when we get it. Testing also raises issues for families that must be dealt with properly. Just because you can do a test doesn't mean you should when dealing with genetics."

But without availability of professionals trained in genetic counseling to help patients interpret test capabilities and results, erroneous assumptions can and will occur.

"If a woman is tested for the BRCA1 gene, and the test is negative, does that mean that she will not develop breast cancer?" said Wargowski. "Of course not."

To prevent such misunderstandings and to better prepare health care clinicians for the inevitable increasing number of requests for genetic tests as they become available, primary care physicians are urged to start planning now to incorporate genetic counseling services into their practices. This responsibility will likely fall into the lap of the family physician, at least in the short term. So, they might as well be prepared.

"If you are part of a group or consortium, start raising the issue of hiring genetic counselors, or contracting with one," suggested Wargowski. "Start asking questions about how are we going to educate our physicians in genetic



Robyn Shapiro, JD, PhD

counseling? When you and your board of directors or your staff sit down at your next five-year planning meeting, put this on the agenda."

Primary Issues

If family physicians are going to be confronted with addressing patient concerns associated with genetic testing, what are the major issues?

"How do we ensure patients are provided with the right information?" asked Richard Pauli, MD, PhD, University of Wisconsin Medical School professor of pediatrics and medical genetics. "How do we assure patients that they will retain autonomy regarding decisions to be tested? This deals with pre-symptomatic issues; it's much different than giving consent for a blood test, or treating a current disease."

These are not easy questions to answer, according to Robyn Shapiro, JD, PhD, Director of the Center for the Study of Bioethics at the Medical College of Wisconsin.

"The easy advice about genetic testing? Think long and hard about how you are going to do it, and what valuable information you give your patients. Consider the nature of the information, the patient's ability to rely on it and understand it, and whether there is anything you can do about it."

Confidentiality is a major concern of many patients regarding test results, she added, and it

should be for physicians as well.

"You should have this conversation with the patient, concerning where the information will go. You should also know the practices of the laboratory conducting the test concerning its policies regarding breaches of confidentiality, as well as what the practice of the health care insurer and provider are in this regard."

What Should Physicians Prepare for Now?

Primary care physicians should be aware of Alzheimer's Disease and

"The easy advice about genetic testing? Think long and hard about how you are going to do it, and what valuable information you give your patients. Consider the nature of the information, the patient's ability to rely on it and understand it, and whether there is anything you can do about it."

— Robyn Shapiro, JD, PhD

breast cancer gene tests that are available, said Wargowski, adding that it is important to obtain information from family medical histories in interpreting any test results.

"Genetic analysis takes more time and effort than diagnosis for medical treatment," he explained. "We should know patient family history before testing begins. There is a lot of detective work in identifying clinical syndromes."

Wargowski cited breast cancer as one of these conditions.

"There are many characteristics within a particular pedigree of a person who has an inherited predisposition to this disease. It is not uncommon in a large family to

have two to four cases of breast cancer.

"However, as shown in the *New England Journal of Medicine* last year, the significance of a BRCA1 mutation depends on family history as well as other environmental factors. So there can be many interpretations of testing results depending on additional information about a patient's medical history and that of the family."

Pauli said that the clinical hot-buttons for genetic testing will be cancer and neurological disease.

"We are learning now more about mechanisms, predisposition, etc., about these diseases," he said. "Cancer is the first area of medicine being affected increasingly by advances in genetic testing and will likely lead to new treatments. But the same can be said for certain neurological diseases, such as Alzheimer's Disease. And, we're beginning to understand more about rarer conditions, such as Huntington's Disease. Hopefully, the more we learn about it genetically, the more likely we will be able to treat it. There wasn't much hope of this even five years ago. Similar things are happening with Alzheimer's Disease which is so much more common. There has been so much learned about it; you can't help but be hopeful."

Reimbursement an Issue

Due to its newcomer status among medical services, genetic counseling has yet to find a secure pigeon-hole when it comes to reimbursement under the current health care delivery context.

"Because geneticists specialize in the rare patient, every case is unusual," explained Lubinski. "So, it's not just occasional. I find myself having to justify what's being done all the time. I can spend an hour talking on the phone to get the OK to spend an hour with a patient. This

obviously is not an efficient way to do it.

"I suppose it's one way of keeping costs down, make people jump through hoops. Many will just give up. For an insurance company, or HMO, theoretically there to help patients, it's easy to talk about preventive medicine. But in reality, how many of these patients will be with them in 30 years? It's easy when you talk about potential cost savings and then compare it to the cost of doing nothing."

Ultimately a Societal Issue

Lubinski says that society in general will benefit from a better organized and funded system of allocating resources for genetic testing and counseling.

"Most states will not pay for a third cousin to be tested. But what can you do as a physician?" said Lubinski. "We've had genetic conditions that go back six generations. In one situation, we arranged for counseling for adrenoleukodystrophy (ALD), an x-linked disorder, in which women carriers can bear affected males. The boys are normal early, but at [age] four or five, they begin to experience problems, become severely retarded, suffer seizures then eventually die. It's a devastating disorder that people want to know about.

"We contacted other family members and other medical genetic centers from five states. This takes up time, resources and effort. I'd be lucky to get compensated for a single complex visit."

Lubinski laments that the basic research behind genetic testing receives much of the funding and attention.

"I would like to see more support for identifying ways to make it less difficult to address these issues. But there is little funding for this. Molecular studies are sexy, but the clinical side gets minimal attention. That is where all

the time and effort really go. But tests are just the beginning when it comes to real patient care.

"Our clinical genetics meetings are like assembling on the Titanic. The mood swings from depression to panic. There are good people who are dealing with these same issues that have the same complaints everywhere. No one is saying 'gee we have a nice system,' even in Canada there are similar problems.

"I see less and less support. Fewer genetic specialists being trained. We're under pressure to

"I suppose it's one way of keeping costs down, make people jump through hoops. Many will just give up. For an insurance company, or HMO, . . . it's easy to talk about preventive medicine . . . how many of these patients will be with them in 30 years?"

— Robyn Shapiro, JD, PhD

spend less time with patients, less time spent explaining options. Some of these are general issues in medicine. I'm not sure there is an easy way to deal with it."

On the positive side, Lubinski says that Wisconsin physicians should avail themselves of the services of genetic counselors in helping them deal with issues surrounding the myriad tests that are, or will soon become, available.

"Genetic counselors can be helpful in discussions about testing, in working with the family.

They are the ones who are the most actively looking at ways of dealing with the crises surrounding medical genetic testing and in getting the right resources for patients and making sure tests are done properly. They are extremely helpful and underutilized."

Potential for Promise and Peril

Genetic experts want more basic knowledge to help them put everything into perspective, to create a concrete, useful tool that can help make sense of the information and present it in a way that patients can understand and then apply to make serious, life-altering decisions. This will not likely be achieved easily, or overnight.

"We don't want to sound like Cassandras, or to downplay the importance of the Human Genome Project," said Pauli. "It is very exciting stuff; the potential is incredible. But we need to treat it like any preventive public health issue. It represents what can be a revolution in health care, and can save money and suffering in the long run if approached properly. If we can identify and prevent secondary or tertiary disease or complications through this system, it can be a monumental achievement."

Grant for Primary Physicians

To determine strategies to help general clinicians address the issues associated with genetic testing, Wargowski and associate, Raymond Kessel, PhD, have received a grant to develop an educational network for primary care physicians.

"We hope this will turn into a vehicle to help doctors to have greater access to information, and links to other sources of information on genetic testing to better inform their patients about the pros and cons of genetic testing," said Wargowski. The grant focuses on three areas: holding conventional talks, seminars, symposia,

and lectures on the subject; establishing demonstration clinics around Wisconsin; and some type of informatics, for example, establishing a web site.

By helping to develop a system to gather and exchange up-to-date information on genetic testing, Kessel and Wargowski hope to begin to prepare primary care physicians for responsibilities in this field that are likely only to increase.

"We all have to realize this is a vastly complex field," added Wargowski, "that is changing constantly; it's an extremely dynamic environment."

Pauli relates it to taking a snapshot of a river. "Well, that's what the river looks like at this moment," he explained. "And, we think that it will look similar to this in the future, but we can't be sure."

Physicians can expect that the river of information concerning genetic testing will likely grow deeper and faster in the next few years.

Genetic Testing— Continued from p. 33

An economic imperative may help change this: a lawsuit demanding availability of comprehensive genetic counseling reimbursement, or perhaps legislation to guarantee access to counselors, such as was enacted with chiropractors several years ago.

In addition, there is so much that is unknown, he added, that research needs to be conducted concurrently to ensure that counselors are providing accurate and useful information.

"We need to be compiling information about patients, testing and environmental factors that we are not getting now," Wargowski continued. "We need this information upon which to build new knowledge; we're missing that opportunity now."

"We need to see new patients to generate this new knowledge," Pauli added, "and we won't get them in a system involving

vertically-integrated HMOs. Currently, HMOs want to provide good care and contain costs. That is their goal. It is not conducive to providing genetic counseling care or gathering research information to better do so."

Lubinski said appropriate genetic education means spending as much time as it takes to ensure a patient understands the ramifications of obtaining a particular test, or of not having it done. This type of care does not necessarily fit the contemporary HMO model.

"Occasionally when I talk with my representative at the HMO," said Lubinski, "I'm asked sarcastically if I'm spending enough time with my patients."

Wargowski said the worst scenario is that there soon will be thousands of tests available, which thousands of people will be seeking, and the concomitant information about the implications of the results will just not be available.

"It's relatively easy to look at single gene disorders, but now we're into a broader list, with multiple genes and non-genetic factors like environment," he explained, "and these issues are getting much less research attention. Very little money is being spent in these areas now.

"So, in effect, we are looking at only half the puzzle, and the half we are not addressing now is critical. Without it, we won't know how to properly apply the half we know, we won't know how to calculate a precise risk assessment. We're at a point today where we can tell patients what we know and do not know about the implications of their test results. Unfortunately, what we don't know often limits the usefulness of the tests.

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Ethics of Genetic Testing

by Marc Kennedy, Special to WMJ

"Genetic technology puts personal and social values on a collision course. There's a right to privacy, a right to control information about oneself, and a right to make decisions about the health and well-being of ourselves and our children. Do these include a right to decide the genetic makeup of our future children? Are parents who fail to shape the genetic endowment of their children morally guilty of negligence? To what extent do we need laws or professional guidelines to regulate individual decisions in the area of genetics and reproduction?"

—from *Medical Economics*,
July 14, 1997

According to this article in *Medical Economics*, researchers at the Ethical, Legal and Social Implications of the Human Genome Project, or ELSI, call educating physicians a top priority. Michigan State University has a \$1 million ELSI grant to conduct studies and surveys on implications of the project. The results of the survey are due in the spring of 1998.

Medical and Societal Issues

Clinical geneticists see two prominent issues concerning the advent of an unprecedented number of tests becoming available to identify genetic predisposition to myriad diseases and conditions: medical and societal.

"With medical issues, we are talking about testing to determine risks and benefits to patients and their families," said Richard Pauli, MD, PhD, "and whether appropriate information is available to make the tests worthwhile. For societal issues, there are larger ethical questions."

Pauli listed several examples:

- Is it proper to do susceptibility tests on potential employees?
- How is society as a whole going to view differences of certain individuals?
- Does society value diversity, or does it prefer homogeneity?

"Four years ago, the genetic mutation for dwarfism (achondroplasia) was isolated," said Pauli. "There was some tremendous concern expressed that discovery of

"There was some tremendous concern expressed that discovery of this gene would cause families not to bear children with dwarfism. When such knowledge becomes available for other characteristics, will our attitudes toward diversity change?"

— Richard Pauli, MD, PhD

this gene would cause families not to bear children with dwarfism. When such knowledge becomes available for other characteristics, will our attitudes toward diversity change?"

David Wargowski, MD, clinical geneticist and UW associate professor of pediatrics, cited another example involving deaf parents.

"In the deaf community, many families with deaf parents find it preferable to have deaf children," Wargowski explained. "Many are

scared of having a hearing child. The deaf community is very self-contained; having a hearing child would be disruptive, so many would prefer having a deaf child."

"Should I be able to decide if I want to have a deaf child or a child with dwarfism?" he asked.

This puts a different spin on how society views diversity.

"If a single blood test enables us to determine if my children are likely to be born with a certain genetic disorder, can I refuse to have the test done?" asked Pauli. "What are my responsibilities? What are the responsibilities of society?"

Access to Information

As an ethicist, Robyn Shapiro, JD, PhD, said she sees two imperatives concerning genetic testing and the public: access to accurate information, and counseling concerning the significance of this information.

"As these advances make it to the bedside, there needs to be a clear understanding by both provider and patient as to the nature of the information generated, how reliable it is and what it means," said Shapiro, Professor and Director at the Center for the Study of Bioethics at the Medical College of Wisconsin.

"It's one thing to say you have this result, that you are likely to get X, Y or Z by the time you are 40," said Shapiro, but this has to be kept in perspective and explained so that patients can understand the implications. "Both patients and clinicians need to clearly understand the concept of false positive and false negative. It's important that this information is disclosed and agreed to before the patient agrees to take the test."

"This is a critical piece of coun-

selling; the implications that aren't medical but have an impact on you and your family in the future — how results may affect insurability, and whether this information will be disclosed to insurers."

This leads to Shapiro's second imperative: Do we have adequate capabilities for genetic counseling for patients before this data is even generated.

"If tests are conducted, what are the limitations of confidentiality? And how is this information going to be used?" asked Shapiro. "We see elsewhere, for example in family law in a divorce case concerning custody, one parent is demanding that the other spouse get tested for certain conditions to see if they are likely to develop disease that would limit parental responsibility. The implications are that one spouse would live longer than another based on genetic testing, making that person a more stable and proper parent. There is the possibility of this type of abusive use.

"We need to be thinking long and hard about what needs to be done regarding genetic testing at the policy level."

Confidentiality Key

"Bedside doctors need to be clear about limited nature of confidentiality laws at present," Shapiro warned. "We do have state law preventing employers from discriminating, and with the pending Kennedy-Kassebaum bill, there are some additional protections.

"But there are loopholes at federal level. Because of ERISA, Wisconsin state law is not applicable to self-insured companies. If we look at federal law alone, it protects against abuse of genetic information of people insured through employers. But if you are not getting insurance from a group, the law is of no use. The bottom line is that the nature of protection of confidentiality is soft, even at best, though there is conversation on the Hill to enact more forceful legislation."

Wargowski mirrors the concern of Shapiro when it comes to the legal protection for confidentiality of genetic test results.

"Legislation is wimpy on this," he said. "It doesn't make a statement one way or another. Part of the problem is that it is too complex. And part of it is that we haven't looked at it hard enough."

For these reasons, Shapiro advocates caution to those eager to jump on the genetic testing bandwagon.

"We need to be careful," she said. "This field has been moving so quickly, we are so ill-prepared to deal with it. On one hand, we have more information, on the other, more opportunities for disclosure of this information. It's important for us to be sophisticated in analyzing this. Can we divulge different information to health insurers versus life insurers?"

The Right Not to Know?

Another aspect that troubles Shapiro is who should have control over the information generated by genetic tests.

"Who should determine this? What if some people don't want to look into the crystal ball? Should they have the right not to know?"

She added that determining rights of the individual and interest of the public are always a challenge.

"One problem in making these determinations based on genetic testing is that you are saying that you have a certain susceptibility to develop a condition or disease, or of passing it on to your children," Shapiro pointed out. She considered the aspect of personal freedom versus good of the public health in the case earlier this century when tuberculosis sufferers were sequestered due to contagion, sometimes against their will.

"Potential is one thing. There is a difference between being an actual contagious TB carrier, and possibly becoming one; that you do have a condition that poses a pub-

lic health problem, and that you may develop that condition."

Advice for Physicians

"The easy advice: Think long and hard about the types of tests your patients are going to have, and what valuable information you can give them," said Shapiro. "When having this conversation, discuss where this information might go, and who may obtain access to it and how they might use it."

Discussing these factors can help patients better understand the ramifications of testing, enabling them to make more informed decisions of whether or not they want a certain test.

"Family physicians can be very helpful in this process," she added. "The whole issue of genetics is so complex, and so rapid in development, it is very hard to understand what genes and genomes are all about."

Shapiro explained that this why it is so important to get physicians up to speed on the benefits and problems associated with genetic testing, confidentiality, insurability and other aspects and implications critical to patient care. She pointed to an example of a woman who tested positive for cystic fibrosis while she was pregnant.

"The insurance company said it wouldn't cover the child if the woman were to continue with the pregnancy," she said. Situations such as this indicate the weight these tests will have on the lives of the public, and of the significance of the role of physicians as advocates for their patients.

"It's important for physicians to get involved at the policy level, to make their voices heard," said Shapiro. "We're in the embryonic stages of dealing with these issues of genetic testing, at the medical, legal and policy level. It's a critical time for determining how these tests will affect everyone."

After all, as Shapiro put it, "each one of us carries eight to 12 defective genes, that could make us all uninsurable."

Genetic Counselors: What Do They Offer?

by Melissa LaRocque, Contributing Editor

As a physician, have you been able to keep up with the ever-changing field of genetics and genetic testing? Are you prepared for the possibility of a patient asking you to order a test for Huntington's Disease?

With the progression of the Human Genome Project, physicians have an array of genetic tests currently available to them and their patients, and the numbers and types of tests offered will only continue to grow. These tests may be "simple" to order, however, there are many complex questions that must be asked and answered before and after a test is administered. Have you received proper informed consent for the genetic test from your patient? Have you explained the implications of consent? Are you prepared to discuss the outcome of a genetic test?

These questions require time-consuming review of detailed, complex information with patients. A professionally-trained genetic counselor works in partnership with the physician to help patients bridge the information gap. They work with patients to help them understand everything from why a test might be ordered, to deciphering the results of the test, particular genetic disorders, and the implications for treatment as a result.

The American Society of Human Genetics defines a genetic counselor as a "health professional who works as a member of a health care team providing information and support to families who have members with birth defects or genetic disorders, to individuals who are affected with a genetic condition and to families who may be at risk for a variety of inherited problems."

"Genetic counselors don't treat the disease, but help physicians and patients interpret and cope with the results," said Kristen Baker, MS, a

genetic counselor at Meriter Hospital in Madison, Wisconsin and a member of the National Society of Genetic Counselors (NSGC).

"Physicians for the most part have not had much experience dealing with patients and the consequences of genetic testing," said Baker, who explained that "once I have begun working with physicians, and they see what genetic counseling can provide to them and their patients they are usually more comfortable letting me take the patient through the testing process."

A Lengthy Process

Genetic counselors identify families at risk, obtain the family medical history and medical records and interpret information about the genetic condition. The process can be lengthy and time consuming. According to Baker, "each counseling session takes at least one hour. In my experience, physicians don't have the time or the resources to put into the amount of information available on genetics."

Before testing takes place, genetic counselors try to ascertain that the patient is prepared psychologically to cope with the possibility of a positive test, and that they have enough information to make a truly informed consent. If the patient proceeds with testing, counselors help the individual and the family adjust to the test results and work with the physician to arrange for whatever prevention and screening measures may be appropriate.

Education

Genetic counselors must complete a two-year Masters level training program which includes course work and field training focusing on medical genetics, psychology and counseling techniques. There are only 23 training programs available in the U.S., one of which is located at the University of Wisconsin-Madison. Once a student

has finished the Masters program they are eligible to become certified genetic counselors by taking the American Board of Genetic Counseling (ABGC) examination. According to the National Society of Genetic Counselors, Inc., (NSGC) most employers require genetic counselors to be board certified.

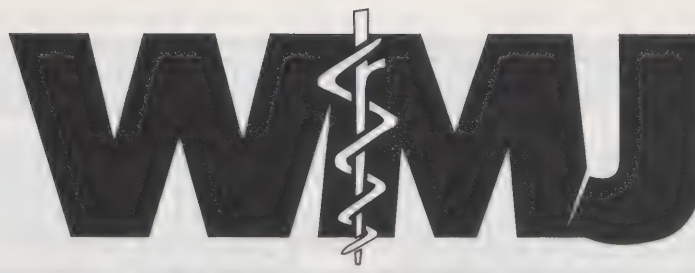
Resources Available

"There are approximately 1,600 genetic counselors in the U.S., with about 100-125 new graduates entering the field each year," said Bea Leopold, Executive Director of NSGC. According to Leopold, "there are somewhere between 40 and 50 counselors available throughout Wisconsin and for the most part are found working in hospital or university settings."

The NSGC Web site, <http://www.members.aol/nsgcweb/nsgchome.htm>, provides a good resource for information about genetic counseling including the names of members who gave their permission to be listed to assist in locating counseling services. Counselors are listed by state and city. For more information, the NSGC can be reached by phone at: (610) 872-7608.

The American Society of Human Genetics also offers a Web site for information about genetic counselors and their role in the health care team. The site is located at: <http://www.faseb.org/genetics/ashg/ashgmenu.htm>.

The area of genetics testing may seem overwhelming, but it is important to remember that a genetic counselor is someone whom both physicians and patients can turn to for help before proceeding with tests, during the testing process and following testing.



WISCONSIN MEDICAL JOURNAL

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An Unusual Chromosome Rearrangement in a Patient with Features of the Wolf-Hirschhorn Syndrome

Marc S. Williams, MD; Kevin D. Josephson, MS; David S. Wargowski, MD; and Gordon W. Dewald, PhD

INTRODUCTION

Wolf-Hirschhorn syndrome is a distinct clinical entity with features that include: growth deficiency of prenatal onset, mental deficiency, multiple craniofacial anomalies including prominent glabella, hypertelorism, preauricular pits or tags, a broad, beaked nose, cleft lip and/or palate, and micrognathia, cardiac defects, midline scalp defects, genital anomalies, and low dermal ridge count.^{1,2,3} In 1965, the syndrome was reported to be due to a deletion of the short arm of chromosome 4.^{1,2} The critical region of chromosome 4p has now been defined,^{4,5,6} and fluorescence in situ hybridization (FISH) probes for this region have been developed.⁷

We present a patient with the clinical features of Wolf-Hirschhorn syndrome, who posed unusual cytogenetic difficulties which were resolved by close interactions between clinicians and cytogeneticists.

CASE REPORT

A nine-month-old female presented with onset of seizures and status epilepticus. She was the 2400 g (-2 SD) product of a 43-week, uncomplicated pregnancy of a 32-year-old G1P0 mother. Her length was 46 cm (-3 SD) and head circumferences (OFC) was 32.5 cm (-3 SD). A pediatrician was consulted at two days of age because of unusual facial appearance, including prominent nose and epicanthic folds and a diagnosis of

Rubenstein-Taybi syndrome was considered. She had no genetic evaluation until the onset of seizures. At nine months of age, developmental delay was reported, with all landmarks scattered between four- and six-months of age.

At one year of age (Figure 1a,b) her weight was 6.62 kg (-3 SD), length was 68.5 cm (-2 SD) and OFC was 42 cm (-4 SD). Dysmorphic features included: dolicocephaly with ridging of the metopic suture, prominent glabella, epicanthic folds, mild malar flattening, wide, low nasal root with a normal bridge and a bulbous tip, small mouth with downturned corners, narrow high-arched palate, moderate micrognathia, low set ears, diastasis recti, and mild generalized hypotonia.

Ophthalmologic exam revealed decreased ability to elevate the right eye in abduction, as well as severe hyperopia. Fundoscopic exam was normal.

The results of laboratory tests and metabolic workup were normal except for mild, but significant elevation of glutaric acid on two separate urine organic acid samples, the significance of which was unknown. Magnetic resonance imaging of the brain showed mild hypoplasia of the corpus callosum, but no other structural abnormalities. Seizures were treated with phenobarbital. The clinical diagnosis of Wolf-Hirschhorn syndrome was made.

CYTOGENETICS

The initial chromosome studies were done with conventional GTL-banding, because the patient was reported to have "seizures" and suggested the karyotype was 46,XX,del(17)(q25). We are aware of only one report of a patient with this chromosome abnormality⁸ and that patient seemed phenotypically different from our patient. At this point the clinicians believed the patient may have Wolf-Hirschhorn syndrome. This led to further cytogenetic studies using FISH and high

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Figure 1a. Patient at one year of age. Note characteristic facial appearance.

resolution chromosome analysis. The chromosomes were studied using a whole chromosome 17 paint⁹ (Figure 2). The abnormal chromosome 17 could be readily distinguished from the normal homologue and there was no evidence of chromosome 17 signal on any other chromosome. The chromosomes were then studied with a whole chromosome paint for chromosome 4, but this method did not produce evidence of chromosome 4 material on any other chromosome (Figure 3). Metaphases were then examined with a cosmid probe specific for chromosome 4p16.⁵ With this probe, only one signal was seen in each metaphase, indicating the absence of 4p16 and confirming the clinical diagnosis (Figure 4). The GTL-banded chromosomes were then reexamined and we found chromatin on the abnormal chromosome 4 p-arm which was similar to 17q25 (Figure 5). We concluded that this patient most likely had an unbalanced 4;17 translocation. We have been unable to confirm that this chromatin was 17q25 with FISH at this time because we do not have specific probes for distal 17q. Thus, we wrote the karyotype as 46,XX,-4,+der(4)t(4;?17)(p16;?q25), del(17)(q25). GTL-banded chromosomes and FISH studies with the 4p16 probe were also done on the parents and each was found to be normal.



Figure 1b.

DISCUSSION

This case illustrates the importance of close interaction between clinicians and cytogeneticists to assure the use of the most modern laboratory techniques and to make the most accurate clinical diagnosis. Without the clinical guidelines, the karyotype of this patient may have been described as 46,XX,del(17)(q25). After the physicians suspected Wolf-Hirschhorn syndrome, this led to important focused analysis of chromosome 4 using high resolution techniques and specific FISH studies, which confirmed this clinical diagnosis.

This report demonstrates a pitfall in using whole chromosome paints to study subtle abnormalities. The accuracy of "whole" chromosome paints are dependent on the ability to stain the entire chromosome. In this case, the lack of good painting in 4p16 and 17q25 prevented us from confirming this translocation with painting technology. The cosmid probes for the "Wolf-Hirschhorn" region on chromosome 4 were useful to confirm the absence of this chromatin and confirmed the final clinical diagnosis. However, high resolution analysis of GTL-banded preparations proved to be the single most informative cytogenetic method to study this patient.

Because the karyotypes of the parents were normal, the chromosome abnormality appears to



Figure 2. Whole chromosome 17 paint. Note the abnormal chromosome 17 and absence of signal on any other chromosome.

be the result of a de novo event. Since each cell had a 4;17 translocation, we suspect this abnormality arose during gametogenesis or at conception. We are not certain about the precise mechanism of origin, but it is possible that this anomaly is the result of an incomplete reciprocal translocation. We suspect a chromosome break occurred at 4p16 and 17q25. Then the 17q25 → 17qter chromatin may have fused with the abnormal chromosome 4. The 4p16 → 4pter chromatin may have been lost, rather than translocated to the abnormal chromosome 17. This would explain the absence of the hybridization site for the 4p16 probe and patient's Wolf-Hirschhorn syndrome. This series of events would leave the abnormal chromosome 17 without a telomere, but this may not be a serious problem, as chromosomes may be able to regenerate telomere consensus sequence (TTAGGG)_n.¹⁰ Alternatively, there may have been two breakpoints on chromosome 4; one at the boundary of 4p16 and 4p15, and the other near 4pter. Then, submicroscopic 4pter may have been translocated onto the abnormal chromosome 17. This hypothesis could be tested with 17qter and 4pter probe, but unfortunately neither of the probes are available.

ACKNOWLEDGEMENT

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Figure 3. Whole chromosome 4 paint. Note apparently normal chromosomes and absence of signal on any other chromosome.

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Figure 4. Wolf-Hirschhorn cosmid probe. Note presence of only one signal in preparation.

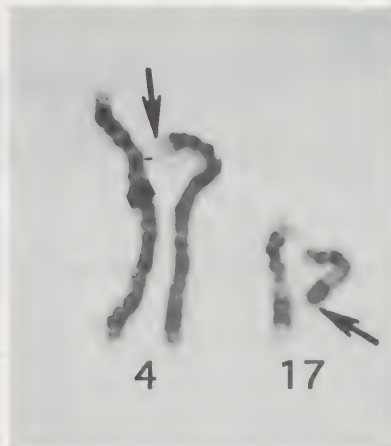


Figure 5. GTL-banded chromosomes suggesting possible unbalanced 4;17 translocation.

GLOSSARY

Chromosome nomenclature: Karyotype can be written in a short-hand form based on the rules set forth by the International System of Human Cytogenetic Nomenclature (ISCN, 1995). Using the two examples in this paper: 46,XX,del(17)(q25). 46=number of chromosomes; XX=2 X chromosomes (patient is genetically female); del=deletion of material from; (17) chromosome 17; q25=specifically band 25 on the long (q) arm. The missing material extends from band q25 to the end of the long arm of chromosome 17. 46,XX,-4,+der(4)t(4;?17)(p16;q25), del(17)(q25). -4,+der(4)t(4;?17)=loss (-) of a normal chromosome 4, replaced by a derivative (der) chromosome 4 formed from a translocation (t) between chromosome 4 and possibly (?) chromosome 17; (p16;q25)=translocation involves band 16 from the short (p) arm of chromosome 4 and band q25 of chromosome 17 (as defined above). The FISH results can also be appended as wcp4, wcp17 and ish4p16. Wcp=whole chromosome paint for this number chromosome (4 or 17); ish4p16=in situ hybridization of chromosome 4 band p16.

Cosmid probe: A combination of phage DNA with bacterial cos-mic DNA that allows creation of a larger DNA sequence which can be designed to look at specific sequences, genes or chromo-some regions.

Deletion: The loss of chromosomal material. Can involve the ends of the chromosomes as in this patient (so called terminal deletion, NB this is not a prognostic definition) or part of the interior of a chromosome (interstitial deletion).

Dolichocephaly: A long narrow cranial contour. Also called scaphocephaly. Frequently seen in extremely premature infants due to positioning of the head from one side to the other. Can also be seen in sagittal craniosynostosis.

FISH: Fluorescence in situ hybridization. A molecular cytogenetic technique in which labelled probes are hybridized with chromosomes and then visualized under a fluorescence microscope. One could say we went FISHing for the diagnosis in this patient.

Glabella: The central portion of the forehead immediately above the nasal root. The metopic suture (anterior extension of the sagittal suture) underlies this area. Premature closure of this suture leads to prominence of this region, as well as a narrow forehead.

GTC-banding: Giemsa-trypsin chromosome banding. A staining

technique that produces characteristic light and dark bands, unique for each human chromosome. High resolution banding can produce 800-1000 distinct bands when all twenty-four chromosome patterns are summed (22 numbered autosomes and 2 sex chromosomes). Each band is numbered according to the rules of nomenclature (see chromosome nomenclature above).

Hybridization: In molecular genetics, complementary pairing of an RNA and a DNA strand or of two different DNA strands. Powerful technique that allows a known DNA sequence to be used as a probe to find its complementary location on the chromosomes. Can be used diagnostically (as in our patient), or to place a known sequence on the "genetic map" (ie. a specific location on a chromosome or other DNA sequence).

Telomere consensus sequence: All the chromosomal telomers (ends of the arms of the chromosomes) have the exact same structure; part of which is a long repeat of six bases (TTAGGG)_n. This makes small terminal deletions difficult to detect, as chromosomes seem to be able to regenerate the terminal sequence to "finish off" the chromosome. These sequences are probably important in chromosomal alignment and pairing in cell division. I think of these as the "TTAGGG" end of the chromosome.

Translocation: The exchange of material between nonhomologous (ie. different numbered) chromosomes. These can be balanced, in which case there is no loss of material and no clinical consequence for the carrier (although potential consequence for carrier offspring) or unbalanced where there is loss of material and usually clinical problems, as in our patient.

Whole Chromosome Paint: a FISH technique whereby multiple probes unique to a given chromosome and located along the entire length of the chromosome can be used to identify specific chromosomes and to look for exchange of material (translocation) between chromosomes. This technique is now so sophisticated that 24-color FISH allows all chromosomes to be painted at one time in 24 different colors such that all can be identified, counted and examined (at least in part) by machine. The limitation with this technique illustrated in our paper is that small translocation will not be seen using this technique. It will also not identify deletions or duplications, so machines aren't going to take over—yet.

Editorial

Physicians Play Role in Genetic Developments

David Wargowski, MD

It is a rare thing these days to pick up a newspaper and not find a report announcing the discovery of a genetic mutation which contributes to human disease. Ten years ago, most of us had little more than a vague sense that genes have important roles to play in disease pathogenesis. Today, research findings confirm this so frequently it would be easy to take them for granted. Atherosclerotic disease, diabetes, hypertension, asthma, arthritis, Alzheimer's disease, depression, schizophrenia, alcoholism, and most common cancers have all been fertile fields of human genetics research, and the list continues to grow. Many of these accomplishments have been driven directly or indirectly by the Human Genome Project, the immediate goal of which is to lay out the entire sequence of the three billion DNA building blocks in the human genome and to identify all genes within it. This truly massive undertaking has now reached the midpoint of its 15-year timetable, and has so far met most of its goals ahead of schedule and under budget.

While the Genome Project has deserved every bit of the public attention it has received, other developments in genetics have also been occurring at a dizzying pace. Recent technological advances have yielded more powerful and accurate diagnostic tools, including chromosome painting (also known as FISH, the uses and limitations of which are illustrated in the article in this issue by Dr. Marc Williams and colleagues), higher resolution chromosome analysis, and a rapidly growing number of DNA diagnostic tests. The last decade has also been a time of tremendous development in the understanding of basic genetic principles, perhaps unparalleled since the founding work of Gregor Mendel some 130 years ago. For example, it is now known that many otherwise identical genes have different effects depending on whether they are inherited from the mother or the father. This process,

known as *imprinting*, was first described in the literature just ten years ago, and already its molecular basis is becoming understood.

Similarly, *anticipation*, the increasing severity of a genetic effect in successive generations, is now known to occur in several degenerative neurological disorders as the result of excessive repetition of DNA "triplets" within certain genes, a type of mutation which can change as it is passed from parent to child. Perhaps the most significant developments, however, have been in the genetics of cancer. During a symposium in Madison last summer, Dr. Richard Klausner, head of the National Cancer Institute, reported that advances in genetics have provided many new insights into the "black box" of cancer pathogenesis which offer real hope that new *individualized* treatment modalities may be on the horizon.

In light of these developments, the time has come for the medical community to carefully examine what has been learned about genetic predisposition to disease, and consider what effect this information may have on the practice of medicine. To do so, it will be important to look past the headline hyperbole and ask several fundamentally important questions. For instance, how can physicians follow these developments closely enough to evaluate them critically and use them responsibly and effectively? What costs is society willing to bear in order to put these tools to use? Most importantly, how will this information benefit patients? Those who have been asking these questions have found the answers hard to come by. To begin to address the questions, it is essential to look at why this work is being done in the first place. The grand vision of the Human Genome Project is that a better understanding of the roles genes play in the development of diseases will lead to new methods of intervention and prevention which correct the fundamental initiating events in the disease process. Its premise is that this type of therapy should be more effective, less dangerous, and in the long run less expensive than current methods of treatment. The pharmaceutical industry seems to have accepted

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this premise; it has invested huge amounts of money in genetic research, with the expectation that it will lead to the development of a new generation of more effective drugs. Along the way, the same technology can be used to identify individuals who are at highest risk of developing specific disorders. Ideally this information will someday be used to direct preventive efforts toward those who will derive the most benefit from them, rather than toward the population as a whole. It may turn out, for example, that genetic testing will be able to identify individuals who can reduce their risk of coronary disease by exercising regularly. For other patients, it may show that this effort would be wasted and that drinking a daily glass of red wine or taking an aspirin would be more effective. This is, after all, a paradigm of preventive medicine, perhaps being taken to a new technological level.

Obviously this is a highly idealized view; enormous practical, ethical, and societal challenges stand in the way of realizing these goals. At the practical level, one clear lesson from the Genome Project is that it's *not* "all in the genes." Relatively few mutations cause disease on their own; in most cases, they must act in concert with many other factors. Some of the others are genetic, but many are not. This makes the clinical applicability even more complex. How can the results of a single genetic test be interpreted in the context of multiple other variables, some of which may not be measurable? Physicians who try to use ApoE testing to determine a patient's risk of developing Alzheimer's disease are already facing this predicament. Until our understanding has developed to the point that we can take into account all of the genetic and non-genetic factors that together result in a definable risk, the risk implications of individual tests will be difficult to determine, and counseling based on these results must take into account that which is unknown.

The paper by Williams, et. Al. on page 42 illustrates another fundamental issue that must be considered as new genetic technologies are applied to clinical care. In all but a very few rare situations, interpreting the result of a genetic diagnostic test requires an accurate, thorough, and thoughtful clinical evaluation. It is still true that the history and physical examination give more information to trained hands, eyes, and minds than the most sophisticated of new tests. If Dr. Williams had not been convinced clinically that his patient had Wolff-Hirschorn syndrome, the initial "diagnostic" test would have led to the wrong diagno-

sis. Only in the context of a recognized clinical phenotype was a more detailed and precise test able to confirm the diagnosis.

The potential for intentional or unintentional misuse of genetic information has been a source of great concern on the part of many people since before the Genome Project was conceived, and recent experience has not done much to allay those concerns. Although 5% of the Project's budget is used for studies of Ethical, Legal, and Social Issues (ELSI), most of the issues related to discrimination by employers, insurance providers, society at large, and even family members, remain subjects of intense discussion within ethics circles. Legislation such as the Health Insurance Portability Act represents a substantive step toward prevention of such discrimination, but its effectiveness has yet to be tested.

Wolff-Hirschorn syndrome, described in the report by Dr. Williams, exemplifies the traditional purview of clinical geneticists: relatively rare disorders, variably defined clinically, often with known genetic causes, and typically involving congenital anomalies and/or developmental abnormalities such as mental retardation. That purview may be changing dramatically as our understanding of the genetics of common disease grows. Increasingly, clinical geneticists and genetic counselors are functioning as integral components of comprehensive cancer programs and other interdisciplinary programs dealing with common and often familial disorders such as the hyperlipidemias, diabetes, and neurodegenerative diseases. Their role is to carefully define situations in which available technology might be beneficial, and to help physicians and patients understand the benefits, limitations, and risks of genetic testing.

This is time-intensive work, the costs of which are typically not covered by insurance or managed care plans. In light of the intricacies of interpreting the significance of test results and the personal and ethical implications of testing, this level of counseling is a critically important component of the testing process. It is clear, however, that the number of available genetics professionals is inadequate for the task which seems to be presenting itself.

It has been said by many that all of us will eventually develop a genetic disorder. If so, to fully realize the grand vision of the Genome Project, new methods of delivering this care will have to be developed. The options are few; either many more genetic counselors will need to be trained and hired, or primary physicians will

need to be offered opportunities to develop this knowledge and a means of keeping up with the avalanche of new information. Accomplishing this may be a task even more ambitious than the Genome Project itself. How will physicians find the time to teach themselves about the intricacies of genetic testing, let alone the time to teach their patients? How will payors deal with genetic testing, especially before early intervention and prevention strategies are shown to be effective? If that can be shown, will payors, physicians, and society be willing to shift the paradigms of care in this direction, presumably at the expense of some components of traditional medical care? Again, these are questions to which we must find answers.

If the potential benefits of "genetic medicine" never come to fruition because its premises turn out to be false, or because the ethical issues involved are too overwhelming to address on a large scale, we will at least have identified some of the practical limits of growth and progress in the technology of medical care. If that happens because practice constraints do not afford us the time to teach each other and our patients how to properly use genetic information, we will have sacrificed much more than a new technological tool. Some may see it as ironic that the success of this technology depends on our abilities to provide careful and thoughtful clinical evaluations and be generous with time needed for effective counseling. If limits to those abilities prevent responsible use of genetic technology, it would be a tragic irony indeed.

Physician Attitudes Toward Research Study Participation: A Focus Group

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Key Words: Primary Care Research; Family Physicians; Research Network; Focus Group.

ABSTRACT

The Wisconsin Research Network (WReN) and the UW Health Education And Research Trial (HEART) sponsored a focus group to explore the attitudes of primary care physicians toward research in their practices. Physicians, representing a variety of practice groups, emphasized that research is a low priority in their organizations. All had participated in some form of research, are philosophically committed to research as important to primary care, but are hesitant to commit themselves to participation in further research. They emphasized that academic researchers need to understand the constraints of primary care practice, propose research ideas that are practical and interesting to care providers, provide relevant feedback to participating practices, and do the majority of the research work themselves so impositions on the practice are minimal. The traditional barriers to practice-based research, such as the cost of physician and staff time and diversion from other tasks, continue to be of concern when physicians consider participation in research projects.

TEXT

The intent of this brief report is to share the insights and perceptions of a focus group of physicians with experience in primary care research,

regarding issues they consider important for practice participation in research studies.

METHODS

Although other authors have addressed this issue using survey methodology^{1,2,3} or reporting on actual recruitment experiences,^{4,5} a focus group has the potential to yield a free flow of information from the primary care physicians' perspectives on research within their practices without restriction to a set of responses defined by researchers.⁶ We recruited a convenience sample of eight physicians (seven family physicians and one internist) from the Wisconsin Research Network (WReN), and from practices which had declined participation in the Health Education and Research Trial (HEART), but who had some experience with primary care research studies.

The discussion guide was based on prior research findings and the collective research and practice experience of the authors. An independent focus group expert (Kroupa and Associates, Madison, Wisconsin) assisted with the development of the discussion guide, then moderated, audio taped, transcribed, and summarized the focus group. The authors observed the discussion through a one-way mirror, and extracted information from the original transcript using an editing analysis style⁶. The following is a summary of the general themes of the focus group discussion.

RESULTS

Information about the physicians and their practice groups obtained by questionnaire immediately before the focus group meeting is summarized in Table 1.

These physicians work in a variety of practice settings including partnerships, a staff model HMO, a solo practice, and a community clinic serving 65% uninsured patients. All but two practices are affiliated to some degree with a larger health care organization or HMO, but two-thirds to three-quarters of their patients remain fee for service. Their practice groups had participated in

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Table 1 - Physician and practice characteristics
N=8 (7 male, 1 female) 7 family physicians, 1 general internist

	Mean	(range)
Age of physician	43	(33-52)
Primary care physicians per site	7.4	(1-20)
Physicians per site	14.8	(1-60)
Primary care patient staff per site	18	(2-80)
Hours worked/week	51	(10-80)
Number of patients/day	26	(12-50)

various research studies sponsored by WReN, the University, pharmaceutical companies, and a self-supported study.

The physicians see their primary mission as providing services to patients. Philosophically they view primary care research as good for enhancing the legitimacy of family practice since they believe that most research is conducted by "specialists who see totally different patients". However, they also indicated that they have no personal commitment to doing research, and rely on others to identify and do potential studies.

While they generally reported positive experiences with research projects, participants indicated that they became easily frustrated with the additional requirements of study orientation, filling out forms and tracking patients. Several said they had discontinued their participation prior to a study's completion with explanations such as "they constructed this research project in such a way that it was ... too cumbersome to do. It was not practical."

They indicated that experiences with both academic and pharmaceutical research were successful from their viewpoint when researchers provided the necessary labor or, less preferably, paid the office staff for the extra work. A typical comment was: "The studies that have worked have been ones where people have come in and said, 'we will do it all, you don't need to do anything'."

This group of physicians is not motivated by authorship, and sees academic physicians operating in a very different world from their own. "One of the things academics forget is that we run a business, and part of my making that business work means doing things that make money; and doing your research is not going to make me any money." They believe that academic physicians need personal contact with physician participants in order to understand the practice environment. The participants noted that it is useful to hear the latest thinking from academics, but it needs to be

practical for the 'real world.' The idea also has to be sold to the entire practice; a physician can't speak for the entire group. One said "...you've got to make me feel like it is my problem (issue) and I've got to make my other seven partners feel like this is a pressing problem, so let's go do it." Their enthusiasm for participation in research then goes as far as saying: "...here is our practice, you are welcome to look at it, but don't get in our way and let us do our job."

Studies that focus on long-term benefits, such as disease prevention, are not seen as having the payoff necessary to encourage a practice group to participate. They do however want to know how to use their time more efficiently and better serve their patients by learning what treatments are most effective. Representative comments include: "...how is it going to help our patients here and now?" "...and what would be a better way of using our time in terms of the health of our patients overall." "I think anything that compares the traditional way of doing things with the new way of doing things, and has a way of looking at outcomes to see if a different way works better would be potentially useful."

The group was generally receptive to the idea of researchers looking at what is happening in their practices; "...we have been involved with various situations where people have come and looked (at our practice). Our first thought is often, boy we don't do that very well... so you have a little apprehension about it, but actually it turns out to be a good learning experience. Both sides learn something." They indicated a desire for timely, independent, non-judgmental feedback from academic researchers, but believe it is a difficult task. "... I wouldn't mind at all having someone come and look at my practice and tell me, hey this is the current thinking and maybe we ought to try to do these kinds of things, but how you actually integrate that into your practice and yet handle the volume (of patients) ... I think that is not a trivial and simple thing."

The discussion of the time involved in practice based research had several components, some of which appeared to be economic issues. Participation in research takes time away from patients, and tasks related to research add to the sum total of the things physicians have to accomplish in a limited amount of time. The imposition on staff time was seen as being disruptive to the smooth operation of the practice, which may lead office managers to veto a project. The physicians

discussed time issues as directly related to practice income and wanted payment of staff for non-patient care time.

DISCUSSION

Information from one focus group cannot be generalized to other groups of physicians; it can however raise questions for further exploration and generate recommendations specific to the group. The primary care physicians in this group are primarily interested in meeting their patient care and economic needs. Even prior participation in a research project does not ensure that a individual physician is interested in or will participate in future research studies. Rather, each study is evaluated on its' own merit and its' effect on the physician's practice. These physicians report they are more likely to collaborate with researchers if the research question addresses issues important to their own primary care practice, assists them in providing better more efficient patient care, and does not interfere with their daily care giving or overburden their staff. The barriers to research participation noted by the group are consistent with prior reports which found that multiple factors are considered prior to research participation including: time, funding, interest in the topic of the study,⁴ the backing of support staff,^{3,7} and the intrusiveness factor.⁸

Primary care research depends heavily on the participation of representative primary care practices. This group of physicians believes that in order to recruit primary care groups that are not necessarily interested in research, academic physicians and researchers need to assure primary care physicians that they have an understanding of their practice. This can be accomplished if a physician with practice experience participates in the design, development, recruitment, and coordination of primary care research trials; and if the design of the project itself:

- is of interest to the prospective participants
- is seen by physicians as contributing to improved patient care
- balances academic idealism with practical application
- recognizes primary care physicians' goals are patient services
- is simple to execute
- requires minimum time and is minimally disruptive to the practice

- takes the actual workload off the physician and staff,
- reimburses practice time and expenses
- provides timely feedback to the practice

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Occupational Exposure to Laser Surgery Generated Air Contaminants

David Blustein, PhD Candidate, and Joseph Blustein, MD

ABSTRACT

The objective of the review is to show that scientific evidence is lacking on the safety of laser-generated air contaminants. Further research and data collection are necessary to characterize the potential dangers associated with exposures of health care professionals to laser generated air contaminants.

The article is a review of existing scientific evidence in the area of exposure risks to health care professionals. A careful search of the scientific literature both in medicine and engineering was performed, as well as contact with experts from laser standards advisory sources. These sources include: International Laser Safety Conference, National Institute of Occupational Safety and Health, American National Standard Institute, Laser Safety Institute and Rockwell Laser Industries.

The review includes articles in the literature documenting cases of over-exposures to contaminants while using a class IV laser, the same class laser used in surgery. Several studies of case reports of laser-generated air contaminants from cutting on human and animal tissues are included.

Articles and guidelines on this subject of laser-generated contaminants from the above listed sources were used in writing this review.

The review indicates that lasers used in surgery are potential occupational health risks.

CONCLUSION

There is insufficient scientific evidence regarding the safety of laser use in surgery to health care providers. It is indicated that the various medical procedures using lasers should be scientifically sampled, evaluated, and specified as to the type

and amount of laser-generated air contaminants. These contaminants may pose a health risk to the medical professionals working with lasers, especially with chronic and repeated exposures.

In 1960, when Theodore Maiman constructed the ruby laser using the stimulated emission theories of Albert Einstein, he unknowingly opened a whole new path for medical procedures. The word laser stands for Light Amplification by Stimulated Emission of Radiation. Laser light is monochromatic light, i.e., it is made up of only one wavelength. It is directional in that it travels in one direction. The wavelength is filtered so that it is coherent, i.e., it is in phase. These three characteristics differentiate laser light from other types of light.

Its extremely narrow beam makes the laser a unique surgical device. It is precise, easy to use, provides a touch-free technique and recovery is fast with minimal bleeding and edema. Lasers are classed by hazard level, Class IV being the strongest and the one best suited to medical use. The medical use of lasers has become widely accepted. It is predicted that lasers will soon be used in virtually every hospital in the U.S. for numerous types of surgeries, since they provide the least invasive surgical manipulation.

This surgical "miracle tool" is not without risks, however. Safety hazards associated with laser beams are skin burns, and heat and burn damage to the eyes.¹ These facts have been well established in industries that use lasers. The Occupational Safety and Health Agency (OSHA) has established work practices to protect workers from these safety hazards. The National Institute of Occupational Safety and Health (NIOSH) has recommended safety training to workers who work with Class III B and Class IV lasers. The American National Standards Institute (ANSI) has established ANSI Z136.1-1993 as "The American National Standard for the Safe Use of Lasers." There is also another guidance document pub-

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lished by ANSI, ANSI Z136.3 entitled, "The Safe Use of Lasers in Health Care Facilities." This document establishes standards for therapeutic uses of lasers in health care facilities including engineering, procedural, and administrative control measures, and procedures for medical surveillance. It also details training requirements.

International standards for laser safety, established by various organizations, including the International Electrotechnical Commission (IEC), the International Organization for Standardization (ISO), and the European Committee for Standardization (CEN). Guidelines serve as recommendations and are not mandatory. There is no data on compliance.

Air sampling for industrial workers who use lasers indicate that there are cases of over-exposure to toxic air contaminants due to the burning and gassing of metals.² This is particularly true for welders. The literature also indicates that there is an occupational health hazard to health care professionals who use lasers. OSHA does not have a database available to indicate whether their industrial hygienists have sampled for laser surgery-generated air contaminants. This lack of a database provides no guidance as to whether there has been any sampling, and, if so, whether the sampling results are above or within the Permissible Exposure Limits (PEL) used for industry.

Conversations with physicians who work extensively with lasers indicate that, although skilled in the use of the laser as a surgical tool, they are not aware of the class of laser with which they are working or of the necessity of taking any safety precautions. This points to the need for laser safety training for physicians to lower the risk of potential occupational safety and health problems in the medical field.

Lasers are already used in treating certain cardiovascular diseases. One of the most promising areas is in the treatment of coronary-artery blockage. In this procedure, laser light is used to blast apart the fatty material blocking the artery with minimal damage to the cell wall. Lasers are equally successful in removing lesions, tumors, and malignant cells from the digestive tract.

Lasers have also replaced the scalpel in many dermatological applications. The procedure is quick and relatively painless, and there is usually little or no scarring if done correctly.

Lasers offer a new method for treating certain types of cancer. In the treatment of one type of cancer, dye is injected into the patient and is absorbed in the tumor. Using a laser with the specific wavelength, the laser energy is absorbed by

the tumor. A photochemical reaction then kills the tumor without damaging surrounding normal, non-cancerous tissue. This approach, called Photo Dynamic Therapy (PDT) provides a highly-specific therapy over chemical or radiation treatments.

Diagnostic applications of laser use include DNA sequencing, cell separation, cell sorting (cytometry), AIDS detection, and cancer detection. Laser holograms are used as diagnostic aids to produce three-dimensional representation of body organs such as the brain, liver, and breast to detect the presence of tumors. Laser diagnosis of pap smears is simpler and more reliable than performing the traditional pap smear, which is time consuming and sometimes indeterminate.

It is in ophthalmology where lasers were first used and are now widely accepted as routine treatment for many disorders. Corneal sculpting using the excimer laser is estimated to have a major impact in the replacement of eye glasses. Nd:YAG lasers are used to remove "secondary cataracts" that often form after cataract surgery. Argon lasers are routinely used to treat retinal diseases, retinal tears, and glaucoma. The latter therapy has greatly expanded the number of ophthalmologists who are routinely using lasers as part of their daily treatments. Many ophthalmologists believe that one cannot conduct a successful medical practice for eye diseases today without access to a laser either at the hospital or at the office.

Even with this wide use of lasers by the medical profession, little research has been done questioning the health risks to the physician. They are not educated or informed on the hazard potential involved. This advancing technology must be tamed with safety precautions to protect the health and safety of the medical professionals looking after the health of our nation. The first step to assure this, with lasers as with all new procedures, is to identify and measure the potential hazards. The next step is the development of a hazard-preventing strategy, including a comprehensive training program for all medical personnel using lasers.

Lasers produce smoke and fumes during surgery. This off-gassing presents an occupational health concern to hospital personnel,³ discomfort to patients, restrictions to the surgeon's field of vision, and a noxious odor. When laser energy is absorbed by human tissue it causes disruption of the cell with a rapid vaporization of cellular fluid into a plume of smoke, consisting of vaporized material, steam and particulate matter. While the laser smoke can be suctioned away from the irra-

diated source area by a filtered vacuum system, many health care facilities do not use such a system because of cost, noise and/or lack of awareness. Specific hazards have been found.

Mckinley and Ludlow⁴ evaluated the smoke produced from laser burning on the root canal of extracted human teeth inoculated with *Esherichia coli*. The researchers captured and cultured the laser generated smoke plume. All of the culture media had positive *Esherichia coli* growth. This study concluded that laser smoke presents a hazard of bacterial dissemination.

Sauchuk, Weber, Lowy and Dzubow⁵ reported that me smoke plume derived from warts treated with carbon dioxide laser contained papillomavirus DNA. The study involved a group of human and bovine warts. Half of each wart was treated with a carbon dioxide laser and the other half treated with electrocoagulation. The smoke plume from each procedure was collected with a dry filter vacuum and analyzed for the presence of papillomavirus and human papillomavirus DNA. Greater amounts of papillomavirus DNA were recovered in the laser smoke plume than in the electrocoagulation generated vapor from the same wart.

During laser bronchoscopic and laryngoscopic surgery an increase in air borne particles above the set-up level was noted by Akale, Steifel and Ahren.⁶ Two particle-counting devices were employed, a Climet optical particle counter and the Portacount. A carbon dioxide laser was used for the ten procedures studied. The authors recommend that fit-tested respirators be used for respiratory hazards created by laser plumes generated by surgery.

Moss⁷ conducted a health hazard evaluation of conditions caused by smoke generated by laser surgery. Environment measurements were taken. Compounds related to fatty acids were the major component based on the Fourier Transformer Infrared analysis. Trace amounts of hydrocarbons, formaldehyde, hydrogen cyanide, and anthracene were present.

Nezhat, Winer, Nezhat, Forrest, and Reeves⁸ performed a study to examine the composition of the smoke plume produced during carbon dioxide laser laparoscopic treatment of endometriosis. Twenty-eight samples were collected during the surgery on seventeen patients. The laser surgeries vaporized endometrial implants, pelvic adhesions, fibroids, and uterosacral nerve tissue. The medium aerodynamic diameter of the collected particles was 0.31 microns, with a significant number

in the respirable size range of 0.5 to 5.0 microns.

The National Institute of Occupational Safety and Health⁹ performed a Health Hazard Evaluation for potentially hazardous compounds in the smoke produced during laser surgical procedures. Results of the environmental sampling documented detectable levels of ethanol, isopropanol, anthracene, formaldehyde, cyanide, and mutagenic particles (Ames Test using TA 98 and TA 100 strains of *Salmonella typhimurium*) from solvent extracts of airborne particles. The evaluation report indicated that exposure to the constituents of the smoke generated during laser surgery presents a potential health hazard.

Pal'tsev, Syromyatnikov, Komarova, Yazburskis and Chekmarev^{10,11} surveyed 47 ophthalmologists and 41 surgeons who used laser equipment. The doctors working with laser instruments were periodically exposed to radiation energy levels above the permissible levels. Thirty-five percent of the ophthalmologists and 5% of the surgeons had complaints of increased tiredness toward the end of the day, headaches, eye strain, heart pain, irritability, and sleep problems. Sixty-five percent of the ophthalmologists reported deterioration in sensation over the two-year period. Fifty percent of the surveyed doctors reported an increase in the degree of symptom severity for cardiovascular and neurological deficits during the two-year survey period.

All of the extant research in this area referenced indicates that there are sufficient amounts of laser-generated air contaminants to cause concern. We submit that further research should be done, using accepted industrial hygiene methods for air sampling. The test results should be compared to the standards set by OSHA to determine how the results compare to permissible exposure levels. The levels found should also be compared to the Threshold Limit Values recommended by the American Conference of Governmental Industrial Hygienists. These studies would identify what health care professionals are risking physically and if they are potentially endangering their health, while working hard to heal and protect their patients' health, when using laser surgery.

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Hepatitis C Questionnaire Answers

Quiz appeared on p. 45 of the February 1998 WMJ.

This questionnaire is voluntary and completely confidential.
Please circle your current status:

Staff Fellow Resident: PG1 PG2 PG3 JMS SMS

Circle the one best answer for the following question:

- 1) Hepatitis C infection is associated with all of the following except:
 - a) Essential mixed cryoglobulinemia
 - b) Inflammatory bowel disease**
 - c) Membranoproliferative glomerulonephritis
 - d) Porphyria cutanea tarda
- 2) Chronic Hepatitis C infection:
 - a) Typically has much higher AST than ALT levels
 - b) Leads to cirrhosis in a small minority of cases
 - c) Is not associated with an elevated risk of hepatocellular cancer
 - d) May be seen with intermittent periods of normal transaminase levels**
- 3) Acute Hepatitis C infection:
 - a) Leads to jaundice in most patients
 - b) Typically yields higher transaminase & bilirubin elevations than acute hepatitis B infection
 - c) Is asymptomatic in most patients**
 - d) Is associated with a known risk factor in over 90% of the cases
- 4) Acute hepatitis C infection:
 - a) Leads to chronic hepatitis C in all cases
 - b) Makes up approximately 20% of all acute viral hepatitis**
 - c) Is transmitted via transfusion of blood products in most cases
 - d) Is a frequent cause of fulminant liver failure
- 5) Hepatitis C:
 - a) RNA has been identified in semen and saliva of infected patients
 - b) Is most often transmitted via sexual contact
 - c) Is now noted in <1% post-transfusion hepatitis**
 - d) Is transmitted by needlestick injury in <0.5% of stuck individuals
- 6) Hepatitis C transmission has been noted via all of the following except:
 - a) Receiving an organ from a hepatitis C positive donor
 - b) Placement of a tattoo
 - c) Undergoing cardiothoracic surgery during which hepatitis C positive surgeon sustains digital trauma
 - d) The fecal-oral route**
- 7) Hepatitis C:
 - a) Positivity is an absolute contraindication to liver transplantation
 - b) Recurrence is not noted in the majority of recipients viremic at transplantation
 - c) Positivity, along with the presence of hepatitis B DNA in the same patient, is an absolute contraindication to liver transplantation**
 - d) Positive patients with elevated transaminases should be imaged with CT or MRI
- 8) In the diagnosis of hepatitis C infection, all of the following are true except:
 - a) Blood donations are now routinely screened for the presence of hepatitis C RNA**
 - b) A significantly higher incidence of hepatitis C RNA positivity is noted in chronic hemodialysis patients
 - c) HCV RNA testing should be performed if antiviral therapy is anticipated
 - d) The presence of HCV antibodies does not imply immunity to development of cirrhosis
- 9) In the diagnosis of hepatitis C:
 - a) Second-generation ELISA tests are sensitive and specific and are thus routinely used for screening and confirmation purposes
 - b) Any patient with hepatitis C should have an imaging scan of the liver
 - c) In the renal transplant population, the absence of antibodies to hepatitis C virus usually excludes the diagnosis of infection.
 - d) RNA testing can establish early acute infection prior to antibody detection or transaminase elevation.**
- 10) In treatment of chronic hepatitis C, all of the following are true except:
 - a) Alpha interferon has been shown to be efficacious in over half of treated patients**
 - b) Treatment with alpha interferon leads to improvement in histology
 - c) Alpha interferon therapy is usually given three times/week for at least 6 months
 - d) A liver biopsy prior to interferon therapy is mandatory, unless there is a contraindication to biopsy
- 11) In the treatment of hepatitis C infection:
 - a) Prednisone at a dose of 40 mg po qd for six months followed by a slow taper has been approved by the FDA
 - b) Platelet counts below 70,000 are an indication for treatment with alpha interferon in patients with cirrhosis
 - c) Gamma-globulin should be used for health care workers that have been exposed to hepatitis C virus infected blood
 - d) Acetaminophen, without alcohol, does not accelerate the course of liver disease**
- 12) Treatment with interferon alpha
 - a) Is associated with hair loss which is irreversible
 - b) Should be discontinued if the absolute neutrophil count drops below 5,000
 - c) Is contraindicated in patients with MPGN and a decrease GFEt
 - d) Is commonly associated with fever, myalgias and malaise**



Informed Consent and Genetic Testing

by Timothy J. Strattner, JD

You have been providing health care to Sue Smith for at least 15 years. What should you say to her now?

Sue Smith is a trim, energetic woman in her early 30s. Her general health has always been good. She has a career in sales or marketing. You have the impression that she is successful in her job, and that she is still enthusiastic and ambitious. She has always kept in perspective those minor illnesses with which she has presented, if anything, understating their importance. But what should you say to her now?

Sue Smith's mother, a vibrant woman in her 50s, is undergoing treatment for breast cancer. Sue Smith has asked you to refer her for genetic testing to assess her own susceptibility to the disease. She read about such testing, or heard about it somewhere. She wants to be tested, she wants to know if she too will have cancer someday. What should you say to her now? Wisconsin law should play a part in your answer.

Law Governing Informed Consent

Traditionally, the law imposed a duty on all health care providers

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who treated a patient to inform that patient of the risks and benefits of that treatment, as well as the availability of treatment alternatives, if any. This duty is imposed on a treating health care provider to assure that the patient being treated is giving his or her "informed" consent to that treatment. The Wisconsin Legislature has attempted to codify this duty in sec. 448.30, Wis. Stats.

Over the last few years, the Wisconsin appellate courts have become more and more demanding of what physicians need to tell their patients. For example, although a differential diagnosis may not be the physician's ultimate diagnosis, the physician still needs to tell the patient about the medical treatment available to treat that possibility. See *Martin v. Richards*, 192 Wis. 2d 156, 531 N.W.2d 70 (1995). Recently, in *Schreiber v. Physicians Insurance Company of Wisconsin*, (Appeal No. 96-3676, Wisconsin Court of Appeals, decided February 17, 1998), a Wisconsin appellate court went even farther.

In the *Schreiber* case, the plaintiff had delivered her first two children by caesarean section. When she became pregnant a third time, both she and her doctor decided that a vaginal birth would be the best course for the delivery. However, after the plaintiff was admitted to the hospital, in labor, she told her physician that she had changed her mind. She wanted a caesarean. The physician did not believe the caesarean was medically indicated at that point and ignored her request. Some time

thereafter, it became clear that the plaintiff was not going to make progress with labor, and Pitocin was administered to stimulate the labor process. During the administration of the Pitocin, the fetal heart beat suddenly dropped, which required an emergency caesarean. The baby was delivered a spastic quadriplegic. The sole issue before the Wisconsin Court of Appeals was whether or not the plaintiff could successfully assert a claim under the informed consent statutes.

On appeal, the defendant-physician explained that a caesarean was not medically indicated when Mrs. Schreiber requested it and, therefore, could not be considered a medically viable alternative. The court of appeals, however, held that:



In addition to protecting the patient's right to obtain information, the informed consent statute must protect the patient's right to choose a medically viable treatment and have that choice respected by her or his doctor.

The court of appeals concluded that Mrs. Schreiber had the right to choose the "medically viable treatment option" of a caesarean, rather than to continue to attempt a vaginal birth. The failure to perform the surgery, when demanded, amounted to a violation of the patient's right to give an "informed consent" to her treatment: the patient has the right to choose between "viable treatment options," regardless of the physician's recommendations or what was medically necessary.

Sue Smith wants to undergo the genetic testing necessary to assess her susceptibility to breast cancer. She is your patient, and she has asked you for a "medically viable treatment option." What should you say to her now?

Law Governing Genetic Information

Remarkable progress has been made in the field of human genetics. Ironically, the knowledge itself which can be gained through genetic testing raises difficult ethical and legal issues. Individuals at risk for genetic disorders may find that the genetic information gained by a test will be used against them by employers, insurance companies, school officials, adoption agencies, the military, and other organizations or institutions in our society.



Wisconsin has enacted legislation addressing the use of genetic information by both insurance companies and employers. Section 631.89, Wis. Stats., prohibits health insurers

from using genetic testing information to determine rates, prohibits them from requiring a genetic test, and even prohibits them from inquiring if a genetic test has been performed. Health insurers are also prohibited from conditioning the provision of insurance coverage or benefits on genetic testing.

While these statutes appear to afford broad protections for patients with regard to their insurance coverages, there are questions about the law which raise concerns. First of all, many patients obtain their health insurance coverage through their employment, and many of these health insurance plans are governed by federal law (commonly known as "ERISA" plans). State law might not apply to these federally-regulated plans. Even where state law is applicable, there are going to be questions about the scope of the

protections afforded. For example, genetic testing is narrowly defined as "a test using deoxyribonucleic acid extracted from an individual's cells." Sec. 631.89(1), Wis. Stats. Given this definition, protection against insurance discrimination may apply only to DNA testing, and not to other testing that analyzes proteins contained in genes or information contained in family histories.

In addition to the statutes which attempt to regulate use of genetic test information by health insurance companies, Wisconsin has enacted legislation governing the use of genetic testing in employment. Section 111.372, Wis. Stats., prohibits employers from requiring employees to undergo genetic tests, and prohibits discrimination against an employee based on the results of a genetic test. Indeed, sec. 942.07, Wis. Stats., provides that an employer who requires an employee to undergo a genetic test, or anyone who provides the results of a genetic test to an employer without the employee's consent, can be found guilty of a Class B misdemeanor.

Regardless of these legislative efforts to restrict the use of an individual's genetic information to appropriate purposes, there are obvious practical concerns regarding inadvertent or inappropriate dissemination of such information. The remarkable expansion of computer capability allows an entity to readily collect, store and exchange information. In fact, insurance companies utilize systems of national data banks which allow them to keep track of individuals with certain diseases or conditions. Once this information is available in a national data bank, there is the chance that it may be disseminated without the patient's knowledge or consent. Credit reporting companies, employers and other insurance companies will all potentially have access to reported medical histories being

stored in the various data banks. Moreover, while a specific genetic test may not be intentionally reported or disclosed to a data bank, reference to the test result may well find its way into a patient's history, discussion of a differential diagnosis or support for a particular treatment plan. It is probably naive to think that this information can be kept confidential in this "information age."

What Should You Say to Her Now?

Sue Smith has heard that there may be genetic testing that would assess her susceptibility to breast cancer. She has an immediate family member presently struggling with the disease. Given that the test is a "medically viable" option, what should you say to her?

Certainly, a patient must be fully informed as to the ramifications of genetic testing. Ideally, the patient should be able to intelligently weigh the benefits of obtaining the results of genetic testing against the consequences of both not having the genetic information and having the genetic information in his or her medical records. Clearly, the medical aspects of genetic testing should be discussed: the necessity for the test, the reason the patient desires the test, the effect the test result will have on treatment and screening, if any, and the impact of the potential test results on the patient's mental or physical health. This discussion may include the ethical questions of releasing information to relatives who may carry the same defective gene. The discussion should also entail the potential risk of a positive test result being disseminated outside the medical records.

With regard to genetic information, the adverse consequences involve the very real possibility that the information may be inappropriately or inadvertently disseminated. Generally, a person has a reasonable expectation that

his or her medical information will remain confidential and will not be revealed to third parties without that person's consent. The privacy of health care information traditionally has been protected by the physician-patient privilege or the confidentiality of health care record law. See secs. 905.04(2) and 146.82, Wis. Stats. The patient should be assured that the confidentiality of any genetic test results will be protected as much as possible. Certainly, this assurance is necessary because the unauthorized release of genetic information would significantly undermine the physician-patient relationship. Nonetheless, despite the legal protections that have been enacted in Wisconsin, the unauthorized and inappropriate use of genetic information is a very real possibility. The simple act of submitting the bill for the genetic test to a health insurance carrier for reimbursement discloses the fact that the test has been given. Even if the insurance carrier does not specifically request or obtain the test results, information reflecting those test results may well appear in other portions of a patient's record which is easily accessible by the insurance carrier.

Given the growing use of national data banks by insurance companies, this information may soon be disseminated to non-medical entities.

Conclusion

In Sue Smith's case, you believe that genetic testing does not yet have a strong predictive value with regard to breast cancer. Moreover, you think that it is unlikely that information obtained through genetic testing would affect her medical care insofar as the possibility of breast cancer is concerned. In other words, the treatment plan, regardless of the test result, may be yearly, or bi-yearly mammograms and breast examinations. Indeed, the very possibility that the results of a genetic test might cause Sue Smith to elect a prophylactic double mastectomy, given her present frame of mind, might even be reason to not want her to undergo the genetic testing.

So what should you tell Sue Smith?

Acknowledgments

Mr. Strattner would like to thank Ms. Amy Doyle for her help in researching the article.

*Focusing on Abusers —
Continued from p. 61*

patients. Don't be surprised if they don't take your advice right away. Coming to terms with this issue takes time.

- Do not recommend couples counseling as a primary intervention for relationship violence.
- At times of crisis, recommendations to temporary separation, cessation of alcohol or drug use, immediate referral to a recognized abuser treatment program are reasonable responses for health care providers.

Follow-Up Plan

We know from experience that domestic violence is a pattern of behavior that typically lasts over time. Therefore, it is unreasonable to believe at identification, a brief conversation and a referral to abuser treatment will absolutely remedy the problem.

Follow-up is an important component of the health care provider's response. Be sure to ask about the issue at subsequent visits by the patient. Ask about the patient's follow-up on referrals if they were made. Make a phone call to the patient, if possible, to reinforce your concern and underscore the seriousness of this issue.



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The Next Step: Focusing on Abusers in the Health Care System

by Darald Hanusa, PhD

Editor's Note: The following is from a discussion Dr. Hanusa had with the SMS Injury Prevention and Control Commission at its December 3, 1997, meeting. The commission and its Domestic Violence Subcommittee have, for many years, discussed the issue of domestic violence as it relates to victims and how physicians and other health care professionals can better identify, treat and refer these victims. However, Dr. Hanusa provided the group with important knowledge on how

and public health burden that our society can no longer bear. In this country, no man has a license to beat...and get away with it, and no woman is obliged to accept a beating...and suffer because of it." (Koop, 1989). Annual estimates of reported domestic violence injuries include: 21,000 hospitalizations; 99,800 days of hospitalization; 28,700 emergency room visits; 39,000 physician visits; \$44,393,700 total medical costs; and, 175,500 days lost from work (McLeer & Anwar, 1989).

that physicians and other health care providers should be aware of:

Abuser Characteristics

Abusers vary considerably in terms of socio-economic factors. In fact, abusers come from all levels of society and on this basis are fairly indistinguishable. However, there are several personality and socialization factors which are distinguishing. These characteristics are typical of abusers in their intimate relationships, and may be present in non-intimate relationships as well. Common abuser characteristics to look for:

1. The "Public Front": Differences between behavior toward his partner in public vs. private.
2. Use of controlling behaviors.
3. Use of excuses:
 - a. Blaming: "She knows my limit, but she just keeps it up."
 - b. Minimizing: "It was only a slap, nothing serious."
 - c. Justification: "She gets hysterical, I have to get her under control."
 - d. Rationalizing: "I'm under a lot of stress and pressure right now."
4. Bargaining/Manipulation.
5. External locus of control.

Detecting Abuse

Abusers are more likely to self-disclose if questions are asked in a non-threatening way using the funneling technique: "How are things going in your relationship?" "Do you and your wife/girlfriend have disagreements?" "How do you go about resolving them?" "When you argue what happens?" "Does any-



physicians can approach abusers. Although the safety of the victim must always be a top priority, identification of, and referral for, abusers should be considered. Information on abuser treatment programs are available through Lynn Sherman, SMS policy analyst, ext. 235 or via e-mail at: LYNNNS@smswi.org.

Introduction

Domestic violence is a major health care risk in America today. It may be the largest health care risk we currently face. According to former Surgeon General of the U.S., C. Everett Koop, "It's an overwhelming moral, economic,

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I believe that we are at a point where it is reasonable for health care providers to begin to ask questions of patients that may help us with prevention and early intervention.

As we progress in our quest to improve the health care response to domestic violence, it is clear and appropriate that most of our energy and efforts go towards improving the safety and protection of battered women. Yet, it is also important that we begin to focus on the other side of the equation as well — the abusers. I believe that we are at a point where it is reasonable for health care providers to begin to ask questions of patients that may help us with prevention and early intervention. There are some factors

one raise their voice?" "Have you ever been angry enough that you have wanted to grab your partner to make her shut up?" "Have you ever grabbed her or pushed her?"

- Questions can be included in the course of a routine examination.
- Normalizing the problem can aid in helping patients discuss their own personal issues, i.e., discuss how common anger and abuse issues are for people.
- Be sure not to ask questions about abuse in the presence of a victim or suspected victim.
- Never interview the abuser jointly with the victim.
- Be aware that physical abuse is often low frequency behavior. Psychological abuse is more frequent and is often an indicator that physical abuse may also be an issue.
- Sources of information about abuse may come from self-reports, partner or other family member report, law enforcement, clinic intake questionnaire, direct questions during routine examinations, etc.
- Look for the results of violent behaviors: broken hand, scratches, cuts, bruises which may be secondary to the abuser's own violent behavior and result by his attempts to abuse the victim; aggravation of a medical condition such as heart attack, asthma attacks, etc.

Abuser Responses

- Do not collude with abusers by encouraging their aggressive or abuse behaviors. Hold them accountable for their behaviors by indicating that abuse is not an acceptable conflict resolution tactic. Use "empathy-confrontation": "It sounds like you are feeling stressed right now, and it's important to find non-angry or non-abusive ways to deal with it." "I can see that you are feeling frustrated with your relationship, and using force against your partner is not O.K." "I hear that you

get really angry with your partner when she treats you that way, and responding with aggressive or abusive behavior will only cause more harm."

- Expect that some, even most, abusers will minimize their abuse and blame their partners or children.
- Be aware of the myths about anger and abuse that can be "tip offs" that abuse is occurring: "She knows how to push my buttons." "I have a really bad temper." "I just lose control." "She provokes me, she makes me mad."
- Always respond to abusers with a matter-of-fact manner, with no display of anger or moral judgment. Expect that some abusers might raise some resistance and even lead to a display of anger. If this occurs, calmly tell the patient that you can see that they are feeling upset and indicate that you would be willing to talk about it at a further time, if they would. According to Ganley (1996) it is more productive to make a summary statement and calmly bring the session to a close, and then return to focusing on the presenting medical concern: "Using force against your partner and property is damaging to both of you. I am concerned and will be glad to make a referral whenever you want it."

Lethality

The following constellation of factors are important in the determination of lethality or risk of violent behaviors when working with abusers:

- Ownership - You belong to me and will never belong to another.
- Obsessiveness - "I can not live without you;" believes he is entitled to her, her loyalty, services, and obedience from her.
- Centrality — total loss of hope for a positive future
- History of relationship violence
- Suicide/homicide fantasies
- Suicide/homicide threats
- Depression — especially feel-

ings of hopelessness

- Weapons — availability, history of possession
- Timing — separation and divorce increase risk
- ECE — early childhood experiences with violence
- Alcohol/substance abuse
- Psychosis
- Rage — at time of her leaving
- Access to battered woman/family members
- Generalized violence/criminal history or activity
- Isolation/social network
- Remorse, justification of violence

Duty to Warn

Over the past ten years, legal mandates have placed health care workers in a position of having to be more acutely aware of their legal and ethical responsibilities to warn victims of potential harm.

Much of the case law developed in this area is the result of a decision in California: *Tarsoff vs. the Regents of the University of California* (1976). Presently, there is a duty to warn when there is a clear and present danger to a specific victim(s). In cases involving domestic violence, in the event that a specific victim is targeted and the health care provider believes that his/her patient presents a legitimate or serious threat, the victim of that patient should be notified and the contact should be documented. It may also be reasonable to contact law enforcement authorities depending upon the level of threat/lethality. Awareness of clinic policy and procedures for duty to warn are important.



Health Care Responses and Referrals

- Be sure that you are aware of referral sources and helping networks.
- By providing information you are helping to educate your

Continued on p.59



Your Financial Fitness

Is Your Life Insurance Up-to-Date?

by Michael J. Dolan, CLU, ChFC,
President, SMS Insurance Services, Inc.

Did you buy life insurance when you first became a parent? If so, you've got lots of company. Have you looked at your life insurance coverage since? If not, you're also far from alone.

Life insurance can replace a lifetime's worth of income that would otherwise be lost when a wage-earner dies. But your life insurance needs aren't static. Just as you revise your investment plans and reviews your will to reflect changing circumstances so you should take a fresh look at your life insurance as the years go by.

The two key questions are: How much life insurance do you need and what kind should you buy.

- How much life insurance is enough? You could rely on a rule of thumb that indicates an adequate level of life insurance is five to eight times your annual earnings. But income isn't the only factor. Your neighbor might earn a similar salary but be part of a childless two-income couple, while you might have three children and an aging mother. Your life insurance agent can help you do a personalized analysis of just how much insurance you need.

That analysis should include other assets that can throw off income for your family, such as an

investment portfolio, as well as any group insurance you have through your job. When it comes to group insurance, though, be sure to ask whether you can keep it in force if you leave your job or retire. If not, and you will still need the insurance it represents, buy an individual policy.

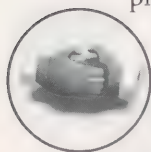
- Which kind of life insurance should you carry? As a young parent, you may want to stock up on term life insurance. Term is "pure" insurance, with no cash value and no savings component, but you can buy far more coverage for less money when you are young. Buy the kind of term policy that can be converted to permanent insurance later.

Term insurance makes the most sense when the need for life insurance is temporary. For example, you might need life insurance just long enough to see your teenage children through college or until the remaining 10 or 12 years on your mortgage are paid off.

If you want life insurance for more than 15 or 20 years, however, permanent insurance is the answer. You might buy permanent insurance if your family will need to pay estate taxes and their assets will be tied up in a family business or real estate. You might buy it if you need to protect children born when you are old enough that term insurance is no

longer cost-effective. And you might want permanent insurance if your spouse or other dependents will not have enough other resources to maintain a comfortable lifestyle.

Permanent cash value insurance has a level premium, based on your age at the time of purchase. Variations include universal life and variable life. Your life insurance agent can help you decide which policy is best for you.



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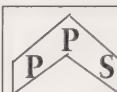
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Global Society Enables Global Contagion

by Judith D. Burke, Director, Publications & Communications

Infectious diseases have long been a crucial component of public health. With epidemics come research, treatment and vaccines to eradicate or at least control outbreaks. But today, the spectrum of infectious diseases is changing rapidly, a reflection of the vast changes taking place in society and the environment. Despite historical predictions, the population remains vulnerable to a wide array of new and resurgent diseases. Sexually transmitted diseases such as herpes and syphilis are on the rise, and other, lesser-known diseases are easily transmitted at an alarming pace. With international air travel becoming commonplace, the health of the American public is more closely linked to the health of people in other nations than ever before. Diseases that were once isolated in particular geographic regions are spreading rapidly among larger populations.

CDC Steps up Efforts

Infectious diseases pose a threat that requires improvement in the ways in which public health is approached. More vigilance needs to be placed on surveillance of emerging infections and to applying research, integrating prevention and control techniques to a wider audience, and strengthening the relationship among public health groups to further prevention and treatment. To achieve these goals, the Centers for Disease Control and Prevention (CDC) have developed *Addressing Emerging Infectious Disease Threats: A Preven-*

tion Strategy for the United States. This plan "addresses the urgent need to improve the nation's ability to identify infectious disease threats and respond to them effectively." (More information on the CDC Strategy is available from the CDC Web site at: http://www.cdc.gov/ncidod/publications/eid_plan/about.htm.)

While not on the scale of more populated states with large metropolitan areas, Wisconsin physicians nevertheless see a fair share of infectious diseases. Opportunistic infections in HIV-infected patients, drug-resistant strains of tuberculosis, STDs with long-range complications, and emerging diseases all necessitate an aggressive prevention and control strategy. And since some infectious diseases are relatively rare or unusual such as, botulism, amoebic meningoencephalitis, neurocysticercosis, and plague, expertise is needed and tools must be made available in order to diagnose and treat in a timely manner.

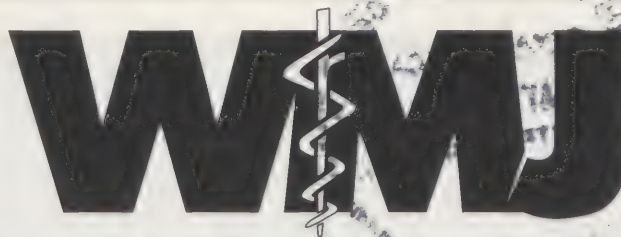
Focus on Infectious Diseases

This month, we explore a wide range of topics that all fall under the umbrella of infectious diseases. The feature articles offer two different perspectives: one about the situations emergency room physicians have to expect when diagnosing and treating suspicious infections (page 13), and a story about a newly-recognized rickettsial disease, human ehrlichiosis (page 17).

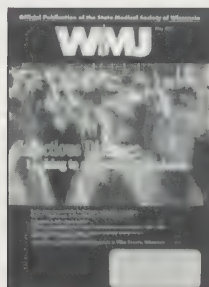
The Wisconsin Medical Journal starts with an editorial overview of featured papers, *Infectious Diseases*

in Wisconsin, by Richard A. Proctor, MD (page 21). Two papers center around HIV begin on page 22. Several case studies that review vastly different diseases are also presented starting on page 39. Be certain to read about how Vilas County in northern Wisconsin has the highest incidence of reported blastomycosis cases in the nation, in *Epidemiology of Human Blastomycosis in Vilas County, Wisconsin, II: 1991-1996*, by Dennis J. Baumgardner, MD, and Kathy Brockman, BSN, (page 44). You will also find an accompanying editorial, *Beware the Fungus*, by Basil Varkey, MD, FCCP (page 48).

Infectious diseases have been with us as long as societies have existed. It is important to celebrate the great strides that have been made in treating these illnesses. According to recent CDC research, tuberculosis has continued to decline nationwide. However, TB cases among immigrants and foreign-born US residents has risen, accounting for 40% of all new cases in 1997. These figures highlight the fact that future control of this infectious disease will be determined by aggressive case finding and treatment programs that place special attention on patterns of disease found in other parts of the world. The effects of globalization on health care are being seen across the US and Wisconsin and the challenges for the health care community will continue to require vigilance and support among the many factions of public health guardians.



Official Publication of the State Medical Society of Wisconsin



COVER THEME INFECTIOUS DISEASES

Physicians in the US are seeing the spread of previously-foreign infectious diseases in their own neighborhoods. Today, international travel breaks down the once geographic barriers which prevented the spread of disease. A healthy US population depends on vigilant identification, management and treatment of such diseases with the understanding of diverse cultures and populations.

*Cover design by Eric Landmann,
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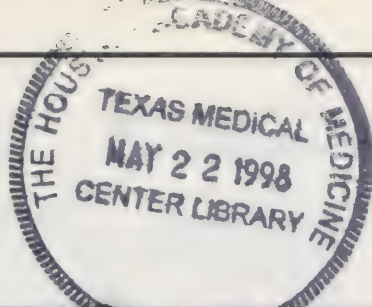
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The *WMJ* (ISSN 0043-6542) is the official publication of the State Medical Society of Wisconsin and is devoted to the interests of the medical profession and health care in Wisconsin. The managing editor is responsible for overseeing the production, business operation and contents of the Journal. The editorial board, chaired by the medical editor, solicits and peer reviews all scientific articles; it does not screen public health, socioeconomic or organizational articles. Although letters to the editor are reviewed by the medical editor, all signed expressions of opinion belong to the author(s) for which neither the *WMJ* nor the SMS take responsibility. The *WMJ* is indexed in Index Medicus, Hospital Literature Index and Cambridge Scientific Abstracts.

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President's Page

Ensuring Our Professional Freedom

by John D. Riesch, MD

Anyone attending this year's SMS Annual Meeting in Lake Geneva found it hard to avoid the phrase, *Working together, physicians can determine the path of medicine*. In my inaugural address I outlined four areas that we, as physicians, must improve to ensure our professional freedom.

Our professional freedom has been encroached on to the point where medical decisions are sometimes made from an algorithm by an individual 500 miles away from our offices. Where have we

gone wrong? What can we do?

- Actively promote the Patient Protection Act to your patients, colleagues, and legislators.
- Employ legislation to place a greater control on reviewers for health insurers by registering and licensing each reviewer in the state. Require that a letter of acceptance or denial be sent to the physician's office or hospitals so that the paper trail is complete if there is an investigative problem at a later time.
- Examine the not-for-profit status that some hospitals have obtained. Some hospitals may be using monies inappropriately to enter the world of business and they are doing this diversification with tax-free dollars. This is done in competition with private entrepreneurs who are subject to normal taxation. In my opinion, this is an uneven playing field.

Second, a lack of agenda is non-productive. We need to join

forces, developing positive coalitions with those who share our interests. The SMS Board has begun this step by committing to a specialty summit this fall. But, more can, and must be done.

Only by positively leading the way can we physicians regain our stance as advocates of the best level of care with freedom of choice for our patients. I propose we lead by:

- Creating an expanded and attractive agenda. The defensive agenda to which we have all become accustomed has to go. We are responsible for developing positive and constructive proposals and proceeding forward with them. This must be on the legislative and marketing sides balanced equally.
- We must develop coalitions for strength and success through such initiatives as promoting the Patient Protection Act to the public.
- Support Governor Thompson's Family Care Plan that would bring the relatives and family into the planning and case management by: (1) The selection of care services wanted and needed, (2) letting them have choices within cost allowances, and (3) coordinate hospitals, home care, group and nursing homes to present duplication. Governor Thompson has proposed \$16 million to provide new in-home services.

Third, there have been attempts to unionize physicians. Some

claim medical societies aren't aggressive enough to serve the needs of physicians. What can we do?

- Unions claim a pro-active stance which is appealing to all of us, generally speaking. Let's encourage our non-member colleagues to join us in organized medicine. Decreased membership in our professional organization dilutes our influence. This approach is the best hope we have for influencing the future of our health care system.
- To develop our membership, we should do more to encourage young physicians to join with us. For example, we should support SMS staff efforts to court medical students and residents; appeal to medical schools to encourage students to join the county state and national medical societies; and add attractive features and let the membership know what we're doing for them.

And finally, the cost of medical care continues to escalate. Fewer Wisconsin small businesses are able to afford increased costs and maintain health insurance for their employees.

In the year ahead, we need to work directly with various managed care organizations to help make sure the physician/patient relationship isn't compromised. We must aggressively seek legislative relief that will help bring the practice of medicine back under the control of physicians caring

Continued on p. 6





John E. Patchett, JD

Advocacy, professionalism and community. These are the areas members say the SMS should focus its energy on. In my column, we have featured discussions about advocacy and professionalism efforts. The SMS Foundation uniquely furthers both professionalism and community efforts. Philanthropically, the SMS Foundation has furthered the medical profession by supporting educational efforts for students interested in the health care field. It has also played a role in raising funds for scientific research through our outcomes research projects. The SMS Foundation has actively promoted community health initiatives through grants. Julie Hein, Executive Director, further details the efforts of the SMS Foundation in this column.

The SMS Foundation Board consists of both physician and community leaders, with Kenneth M. Viste, Jr., MD, serving as the board president. I want to personally commend the SMS Foundation board and staff for the outstanding work that they do. It is challenging in this day and age to differentiate the mission of the SMS Foundation from the many other laudable charitable giving opportunities. They do a wonderful job and have kept true to their mission of enhancing the medical profession and the health of the people of Wisconsin.



Medical Education and Health Care Programs: SMS Foundation is Bridge to Community

by Julie Hein, CFRE, Executive Director,
SMS Foundation

"Health is the Greatest Human Blessing."

—Hippocrates (460-377 B.C.)

Since 1955, the SMS has provided financial support to help enrich the mission of medicine in Wisconsin through its philanthropic arm of the SMS Foundation (formerly known as the CESF). "Our goal is to support medical education, enhance public education and health care programs that will better health care and promote the role that physicians can play in these efforts," said Kenneth M. Viste, Jr., MD, current president of the SMS Foundation.

Medical Education

The mission of the SMS Foundation has always been to assist deserving medical students through its student loan program and medical scholarship funds. Since the early 1960s, ten county medical societies have created student loan or scholarship funds for students in their surrounding areas. Since the program's inception, more than 1,500 students have received a total of \$2,645,500.

In addition, the Foundation seeks to develop worthy charitable, scientific, and research projects that will lead to improved public health and medical care for Wisconsin citizens. I have been Executive Director of the Foundation since 1990, and am pleased with the many outreach programs

we have accomplished.

Our strategic planning sessions have focused on a three-tier approach; incorporating into our fund-raising plans to include programs in public health, medical education, and the newest initiative, the Medical Outcomes Research Project. Due to the leadership of the SMS Foundation board of directors, the Foundation has grown from about 500 annual contributors to almost 3,000 donors in the last year alone. More donors allow us to pursue more charitable activities.



Public Health Care Initiatives

Over the last five years, strides have been made to increase project support for public health care initiatives and medical research. Some past public health care efforts include grants to the UW Department of Medical Microbiology & Immunology for work on a vaccine for HIV, along with providing funding to the Aids Resource Center of Wisconsin, Inc., for clinical drug trials. There is a small biomedical research fund, but more dollars are needed to fund a variety of research projects that are presented to us.

The SMS Foundation also played an early role in launching the Child Safe efforts of the Society. Other public health issues include funding alcohol and other drug abuse programs, mental

Continued on p. 6

for patients. We must make ourselves more attractive as a state society with an aggressive, but positive, approach, utilizing both legislation and marketing tools, promoting ourselves simultaneously to the physician and to patients. And, we must make sure that patient care is always number one, always more important than the bottom line and always the focus of our best efforts as healers.

Together, we can determine the path of medicine. I look forward to leading this organization down that path. Most importantly, if you ever have a question or suggestion, please do not hesitate to contact me. I can be reached at: 414-255-2500 or via e-mail at: SMSPREZ@smswi.org.



AMA Awards

The Wisconsin Physicians listed below recently earned the AMA's Physician Recognition Award. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations. The • indicates members of the SMS.

- Fawzi N. Abujamra, MD
- Jose R. Agoncillo, MD
- Michael J. Blick, MD
- Daniel G. Cavanaugh, MD
- William G. Dralle, MD

health education programs, health and wellness exhibits, brochures, and lectures. The latest initiative has been in orchestrating a drive towards the fight against tobacco use by minors, which resulted in \$10,000 raised to help offset state-incurred expenses of the litigation.

Medical Outcomes Research Project

Since 1997, the SMS Foundation has played a major fund-raising role in cultivating donors for the Medical Outcomes Research Project (MORP). Condition studies that have been launched include asthma (both adult and pediatric), acute low back pain, and acute myocardial infarction.

Gerald Kempthorne, MD, past president of the SMS Foundation (1990-1993), is chairing this effort, along with a team of physician leaders and friends of the SMS Foundation. Physicians, county medical societies, pharmaceutical companies, corporations, and foundations are being approached for support of these studies.

MORP embraces the truest form of quality by asking patients how they are doing and then asking physicians about the care they are giving. Once those results are linked together, physicians can help patients achieve a better quality of life. As Hippocrates stated, "health is the greatest human blessing," and this project, along with the fund-raising efforts of the SMS Foundation, is a means to achieve this great axiom.

In 1998, the Center for Medical Practice Research and Education, was established to further the efforts toward professionalism.

The SMS Foundation plays a very important role in furthering the professionalism of medicine through education, research and public health efforts. Currently, assets have reached over \$6.5 million and we continue to meet the challenge of raising funds for advocacy projects.

If you have any questions or would like additional information about the Foundation, please contact me at: (608) 257-6781, ext. 323 or (800) 362-9080, or via e-mail at: JULIEH@smswi.org.

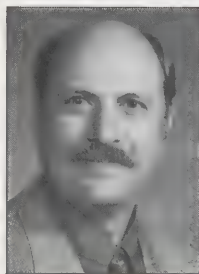
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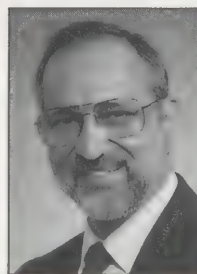
Ellen Blando, MD



David Cook, MD



Peter Curio, MD



Phiroze Hansotia, MD

Community Memorial Hospital Primary Care Clinic doctors, **Ellen Blando, MD**, **Peter Curio, MD**, **Genadi Maltinski, MD**, and **Iris Perez, MD**, visited the Oconto Falls School District's 5th grade classes to discuss D.A.R.E. All presentations followed the school district curriculum to help children understand the harmful effects of drugs on the body.

Kevin M. Bluemel, MD, of Mercy Brodhead Medical Center, was named a Diplomate of the American Board of Family Physicians. He earned his medical degree at the Indiana University School of Medicine in Indianapolis and completed his residency at the Mercy Health System's Family Practice Residency Program in Janesville, WI.

Frederick J. Boehm, MD, earned the continuing professional development Cognate Award from the American College of Obstetricians and Gynecologists. He earned his medical degree from Southern Illinois University School of Medicine and is practicing at the Rice Clinic in Stevens Point.

Paul F. Bostrom, MD, a dermatologist, joined Advanced Healthcare and will practice in Falls Medical Group and Milwaukee Medical Clinic divisions. He received his medical degree from the University of Pennsylvania, Philadelphia. Doctor Bostrom completed his internship at Mount Sinai Medical Center, New York,

NY, and a residency at Wayne State University School of Medicine, Detroit, MI. He is a clinical instructor in dermatology at both the Medical College of Wisconsin and Marquette University.

Richard J. Brown, MD, along with 13 surgical doctors and nurses from St. Luke's Hospital in Milwaukee, traveled to Haiti to perform plastic surgery. They took with them 22 boxes of medical supplies and some of their own surgical instruments. They saw between 20 and 30 people each day and had 70 surgical cases in five days. Patients' ages ranged from 4-months to 80-years.

Family physicians, **Richard R. Clark, MD**, of All Saints Medical Group, Racine; **Michele Reyes Clausen, MD**, of Mequon; **Beth Collister, MD**, of the Mayville Medical Center; **Janet R. Deegan, MD**, of the Dean Medical Center-Evansville; **Albert L. Fisher, MD**, of the Oshkosh Clinic Building, Inc.; **Susan J. Frazier, MD**, of the Medford Clinic; **Lawrence Gill, MD**, of the West Bend Clinic; **James M. Lewis, MD**, of North Shore Medical Clinic; **Thomas A. Lingen, MD**, of the Cumberland Medical Clinic; **James A. Milford, MD**, of Lakewood Family Clinic, Lake Mills; **Calvin D. Nogler, MD**, of the Pound Community Medical Center; **Douglas V. Olmanson, MD**, of the Wausau Medical Center-Marshfield Clinic System; **William Stineman, MD**, of Franklin Family Physicians;

Terry L. Turke, MD, of Watertown; **Carol J. Uebelacker, MD**, of Health Directions-Delafield; **David M. Woeste, MD**, of the River Falls Medical Clinic, Ltd, have all completed continuing medical education requirements to retain Active Membership in the American Academy of Family Physicians. The AAFP is one of the largest medical specialty organizations in the country with more than 80,000 members.

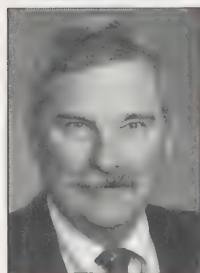
Robert A. Coe, MD, and **Bert Callahan, MD**, were inducted as Fellows of the American Academy of Orthopaedic Surgeons during the Academy's 65th annual meeting in New Orleans. They are associated with the Beaver Dam Orthopaedic Clinic.

David Cook, MD, was named medical director at Cornell Care Center, Cornell. He earned his medical degree from the University of Wisconsin Medical School and completed his residency in family practice at the University of Wisconsin-Eau Claire.

John C. Docter, MD, is the oldest member of the Optimist Club of Racine at the age of 107 and is believed to be the oldest living alumnus of Marquette University, Milwaukee. Doctor Docter graduated from Marquette in 1914 and interned at the Northern Pacific Hospital in Missoula, MT. He soon was named railroad surgeon, a position which carried the extra benefit of free railroad



Who's In The News



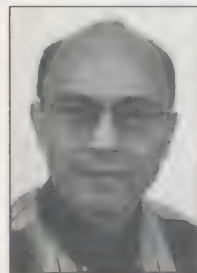
Michael Keyes, MD



J. Joyce Isaacs, MD



Robert J. Jean, MD



Rolando Macasaet, MD

passage over the entire Northern Pacific system. In 1921, he began his practice in Racine which thrived for 45 years. He was well known in the Racine area for his homemade bread which he made for his patients and at one time was sold at 53 supermarkets in Racine.

Ihor Galarnyk, MD, a family physician, will be retiring in July after 42 years of service at the Plain Clinic. Doctor Galarnyk

made several trips to his native Ukraine to consult with physicians and hospitals and has hosted two Ukrainian doctors who were interested in learning

more about the American health care system. He is a member of the World Medical Association and the Pan American Medical Association. He is a Charter Fellow of the American Academy of Family Physicians, a Diplomate and Charter member of the American Board of Family Practice, and a teaching member of family practice at the University of Wisconsin.

A. Mickey Gadhoke, MD, a cardiac specialist, joined Mukwonago Family Physicians. He trained in cardiac electrophysiology at Tufts University School of Medicine in Boston. Doctor Gadhoke also is Director of Cardiac Electrophysiology Services at Waukesha Heart Institute and on staff of all area hospitals.

Gastroenterologist **Joseph E. Geenen, MD**, clinical professor of medicine at the Medical College of Wisconsin and former graduate,

was named a 1998 Alumni Merit Award recipient at Marquette University. Doctor Geenen devised various endoscopic tools which bear his name, and also helped organize Progress in Academic Gastroenterology (PAGE) which makes it financially possible for physicians from underdeveloped countries to visit academic institutions throughout the world to learn new techniques firsthand.

Robert Gerson, MD, plastic surgeon with Mercy Walworth Medical Center, was recognized in the *Aesthetic Surgery Journal* for his work and observations with the ultrasound-assisted lipoplasty procedure. Doctor Gerson was the first physician in the Chicago-land area to utilize this new technology in the removal of unwanted fat cells.

Being honored for 25 years of service to the St. Joseph's Hospital medical staff are: **Michael J. Gryniwicz, MD**, of Brookfield, department of obstetrics and gynecology; **David S. Haskell, MD**, of Elm Grove, and **William B. Kelley, MD**, of Brookfield, both in the department of surgery.

Allan Haesemeyer, MD, a family physician at the Shell Lake Clinic, and his wife Donna, were named Shell Lake's Citizens of the Year in 1997. Doctor Haesemeyer earned his medical degree at the University of Kansas Medical Center, Kansas City, and also completed his residency there.

Phiroze Hansotia, MD, a neurologist at the Marshfield Clinic, received the Service Award

from the State Department of Transportation. Doctor Hansotia was recognized for his many years of volunteer assistance in developing neurological standards for driving and for serving on the Medical Review Board. He is a member of the SMS Commission on Injury Prevention and Control.

Marshfield Clinic surgical oncologist **James L. Hoehn, MD**, has been invited to serve on the Nominating Committee for the National Surgical Adjuvant Breast and Bowel Project. The committee is dedicated to studying the treatment of breast and bowel malignancies, as well as running a large trial aimed at preventing breast cancer from occurring. Doctor Hoehn earned his medical degree from the University of Illinois-Chicago; completed a residency at Presbyterian St. Luke's Hospital, Chicago; and was a Senior Fellow in oncology surgery at M.D. Anderson Hospital & Tumor Institute, Houston, TX.

James Iwakiri, MD, a urologist at Western Wisconsin Urology, was named a Fellow of the American College of Surgeons. He received his medical degree from Northwestern University, Chicago, and completed his residency at Stanford University Medical Center in California.

Psychiatrists, **Michael Keyes, MD**, **J. Joyce Isaacs, MD**, and **John Whelan, MD**, joined Agnesian HealthCare in Fond du Lac. **Doctor Keyes** will provide care primarily to inpatient mental



Who's In The News



Genadi Maltinski, MD



John K. Paulson, MD



Iris Perez, MD



Michael Strigenz, MD

health patients. **Doctor Isaacs** will focus on outpatient mental health services. **Doctor Whelan** will specialize in the care of children and adolescents.

Rolando Macasaet, MD, surgeon and general practitioner, was presented with a plaque in honor of 25 years of practice in the Viroqua area. The presentation was made during the Vernon Memorial Hospital Foundation dinner in March.

James Messerly, DO, a family physician specializing in orthopedics, joined the medical staff of Memorial Hospital, in Medford. He is a practicing physician with the Bone & Joint Clinic of Wausau. He earned his medical degree from the University of Osteopathic Medicine and Health Sciences in Des Moines, IA. Doctor Messerly completed his residency in family practice at the University of Wisconsin Family Practice Residency Program at Wausau Hospital and a fellowship in sports medicine at the Sports Medicine Clinic in Seattle, WA.

John K. Paulson, MD, an internist at Rice Clinic Medical Center, was elected president of Saint Michael's Hospital Medical staff for 1998. Doctor Paulson earned his medical degree from the University of Minnesota Medical School, Minneapolis. He served an internship in Sioux Falls, SD, and a residency at Marshfield Clinic. He also serves as president of the Portage County Medical Society and is president-elect of the Wisconsin Society of Internal

Medicine. Also elected were, **Thomas R. Wagner, MD**, a surgeon, as president-elect and internist, **Robert J. Jean, MD**, as secretary/treasurer.

Julie Stachnik, MD, an obstetrics/gynecology specialist, has joined Columbia-St. Mary's Community Physicians. She earned her medical degree from the Medical College of Wisconsin and completed her residency in obstetrics/gynecology at the Medical College of Wisconsin Affiliated Hospitals.

Michael Strigenz, MD, an otolaryngologist, has been re-elected president of Agnesian HealthCare's Fond du Lac Regional Clinic board of directors. He earned his medical degree and completed his internship and residency at the Medical College of Wisconsin and Affiliated Hospitals, Milwaukee.

Robert Tabet, MD, is retiring after 34 years as a physician at the Fine-Lando Clinic in Cudahy. Doctor Tabet earned his medical degree from the University of Cairo, Egypt. He completed his internship at University Hospital and Union Hospital in Fall River, MA, and a residency in internal medicine at Milwaukee County Hospital. He also completed a fellowship in cardiology for the American Heart Association at Marquette University.

Maria E. Taveras, MD, a Riverview and Delavan Clinic cardiologist, received an award from the American Heart Association for her work with the American

Heart Association's National HeartScore 1998 program. Doctor Taveras earned her medical degree from the University of California, San Francisco. She completed her residency at the University of California, Los Angeles-San Fernando Medical Program.

Sue Tillotson, MD, joined Cardiology Associates of Green Bay. Her areas of interest include congestive heart failure, cardiac rehabilitation and prevention. Doctor Tillotson will play a key role in Cardiology Associates Congestive Heart Failure Clinic.



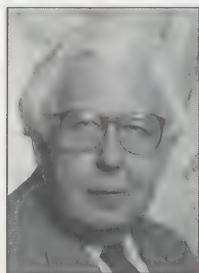
Sridhar Vasudevan, MD, director of the Center for Pain Rehabilitation at Community Memorial Hospital, Menomonee Falls, was awarded the Phillip Lippe, MD, Award at the annual meeting of the American Academy of Pain Medicine held in San Diego. The award recognizes outstanding contributions to the social and clinical aspects of pain medicine.

James S. Veum, MD, retired recently after 41 years of practicing pediatrics in Appleton. He began his career at the Medical Arts Clinic in Appleton in 1956. Medical Arts merged with Nicolet Clinic to form the La Salle Clinic. Doctor Veum earned his medical degree from the University of Wisconsin and completed his internship at the University of Oklahoma Hospitals, Oklahoma City. He served in the U.S. Army Medical Corps from 1952 to 1954.

Who's In The News



Maria E. Taveras, MD



James S. Veum, MD



Thomas R. Wagner, MD



Richard Weirich, MD

Henry Veit, MD, a retired psychiatrist, will be inducted into the Fifty Year Life Fellows/Member of the American Psychiatric Association on June 1st at the AAPA Convocation of Fellows at the Convention Centre in Toronto, Ontario, Canada.

Richard Weirich, MD, PhD, of Riverview Clinic received subspecialty board certification in endocrinology from the American Board of Internal Medicine. He received his medical degree from the University of Minnesota and completed his internship and resi-

dency in internal medicine at the University of Washington-St. Louis. Doctor Weirich completed a fellowship in endocrinology and metabolism from the National Institutes of Health in Bethesda, MD.

In Remembrance



Goral, Thomas J., MD, 66, of Summit, died on February 24, 1998, at his home. He earned his medical degree at Marquette University. Doctor Goral completed his internship at St. Francis Hospital, Peoria, IL, and his residency in internal medicine at Veteran's Hospital, Wood, WI. He served in the U.S. Air Force from 1956 to 1958. Doctor Goral practiced at Rogers Memorial Hospital, in Oconomowoc for 38 years.

Doctor Goral is survived by his wife, Monica; six children: Michael (Ginger), Charles, Thomas, Jr. (Kathryn), Ann, Peter, and Catherine; and three grandchildren: Anita, Eric and Emma.

Kreul, Sr., William R., MD, 87, passed away on March 21, 1998 in Racine. Doctor Kreul earned his medical degree from Marquette University School of Medicine, Milwaukee. He completed his internship at St. Louis University Hospital Group, St. Louis, MO, and residency in anesthesiology at

St. Luke's Hospital, Racine. He was in private practice for 35 years in Racine before retiring in 1976.

Doctor Kreul was awarded a "Citation of Special Merit" in 1981 from the SMS Maternal Mortality Study Committee for his work to make motherhood a safer process. He was inducted into the 50 Year Club of the State Medical Society in 1991 and also granted Life Membership in 1994.

Doctor Kreul is survived by his wife, C. Eleanor; eight children: Ann (William) Krenzke, of Eagle River; Dr. William (Mary) Kreul, Jr., of Stevens Point; Catherine Forgianni, of Oconomowoc; Dr. Paul Kreul, of Elkhorn; Charles (Andrea) Kreul, of Poynette; Margaret Kreul, of Racine; David Kreul, of Kirkland, WA; and Dr. Fredric (Mary) Kreul, of Stevens Point; 18 grandchildren; and 14 great-grandchildren.

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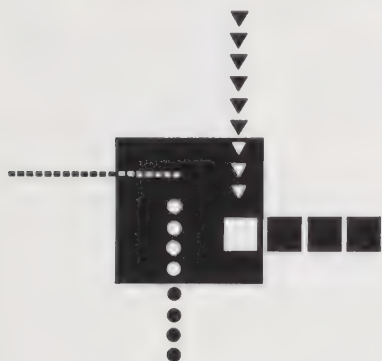
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- ▼ Submit resolutions and participate in mode-of-practice and general interest forums to bring your concerns to the forefront.
- ▼ Testify at reference committee hearings and vote on actions in a democratic assembly to further AMA's advocacy agenda.
- ▼ Attend practical education programs to improve your medical practice, earn **8.5** hours of CME credit** and pay no fee to register!

Your success depends on your involvement! Plan today to attend the 1998 Annual AMA-OMSS Assembly Meeting on June 11-15, at the Sheraton Chicago Hotel and Towers. To receive more information and registration materials, please call **800 621-8335** and ask for the **Department of Organized Medical Staff Services**.

* The American Medical Association Organized Medical Staff Section (AMA-OMSS) leads and assists grassroots physicians, individually and in groups, to organize and reclaim their role as medical leaders and advocates for excellence in patient care, professionalism, and the integrity of the patient-physician relationship. We provide practical educational forums, focused policy development, and grassroots support through the Federation.

** The AMA designates this education activity for a maximum of 8.5 hours in category 1 credit towards the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the educational activity.

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Welcome New Members

The individuals listed below were recently elected to SMS membership by their County Medical Societies. We are pleased to welcome them to the SMS.

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Peter M. Neal, MD

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Mary Abdulky, MD
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Steven J. Gerndt, MD
Mark K. Jenson, MD
Julie A. Magnin, MD
Paul M. Rosenthal, DO
Susan L. Sipes, MD
Clark W. Stevens, MD
Sue L. Tillotson, DO
Steven D. Turzinski, MD

Dane

Carlos A. Alvarado-Valdis, MD
Daniel H. Arndt, MD
David T. Atwell, MD
David Bleidorn (S)
Ralph Froelich, MD
Robert A. Golden (S)
Steven M. Jacobson, MD
James D. Maloney, MD
James G. Olson, MD
Joel D. Wacker, MD
John C. Yost, MD

Dodge

Jennifer E. Tribble, MD
Mon Lun Yee, MD
Melissa E. Lucarelli, MD

Douglas

Kathleen M. Gang, MD
Joseph V. Richards, MD

Eau Claire-Dunn-Pepin

Thomas E. Ferk, DO
Humayun A. Khan, MD
Lilaine C. Leonardo, MD
David J. Schifeling, MD
Todd M. Sheperd, MD

Fond du Lac

Juanita J. Isaacs, MD
Michael J. Keyes, MD

Green Lake-Waushara

Todd Bradshaw, MD

Kenosha

Albert Pecherek, MD

La Crosse

Arthur B. Dupee, MD

Marathon

Mary V. Krueger, DO
Tea Gil Kwon, MD
Katherine P. Patterson, MD

Milwaukee

Saleem Aman, MD
Robert J. Bugarin, MD
Thomas C. Burton, MD
Lisa Kay Butterfield, MD
Antonio C. Caballero, MD
Chi Pei Chang, MD
Dennis H. Chang, MD
P. Anthony Decker, MD
Mustafa K. Diktas, MD
Eric Dorn, MD
Lawrence M. Dubin, MD
Promise Dzakpasu, MD
Christine Fernandes, DO
Matthew S. Harris, MD
Charles K. Hawley, MD
Thomas W. Heinrich, MD
Brian P. Horst, MD
Linh T. Huynh, MD
D. Patrick Kelly, MD
Harry D. Kerr, MD
James F. Kleczka, MD
Renee R. Leiknes, MD
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Melissa A. Walbrandt, MD

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Oconto

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Cynthia Hegg Krueger, MD

Philip A. Sweet, MD

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John Lesniak (S)

Winnebago

William R. Noyes, MD

(S) designates medical student membership





Infectious Diseases and the ER Physician: Expect the Unexpected

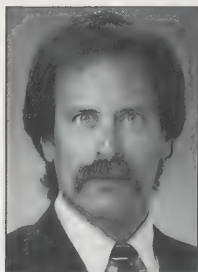
By Marc Kennedy, Special to WMJ

A child arrives in the emergency room at 11:00 p.m. with a high temperature, stiff joints and chills. The physician on duty asks a series of questions while gently examining the youngster, who moans in protest. The anxious parents respond to the doctor's queries, hoping each answer will provide the clue to the child's condition.

While the parents are focusing on the prospects of a benign diagnosis — influenza, perhaps, or maybe just an old-fashioned belly-ache — the ER physician takes the opposite tack: What is the most serious possible diagnosis? Is it something more dangerous, masked by the symptoms of a routine virus that's making the

rounds? Could it be meningococcus or encephalitis?

Though the physician is keeping such thoughts to herself, she is rapidly evaluating which serious diseases to discard and which ones warrant further investigation. And, in addition, she must treat the child with the assumption that once he leaves the emergency



Ben Wedro, MD

room, there is no guarantee that he will receive the follow-up care that the physician recommends.

Consider the Worst, and Work Backwards

"When considering infectious disease, from an emergency room physician's vantage point, we must assume the worst things that it could be, then work backwards," said Ben Wedro, MD, emergency physician at the Gundersen Lutheran Medical Center in La Crosse. "Then, we begin eliminating possibilities based on the information available from the patient, the medical history, current health and circumstances surrounding the illness."

Wedro said that in the ER he has to focus on the worst case scenario because he doesn't have the luxury of telling the patient to come back in a day or two.

"If I were a general practitioner, I would likely approach it differently," he continued. "But in the ER, there is no guarantee of a follow-up. Once they leave, we can't be sure that they will get the necessary care. I don't run tests for everything, of course, but I do consider the most serious problems, and what bad things can happen if it remains untreated."

Dr. Wedro's medical constituency encompasses mostly La Crosse and surrounding small towns and farms. Though he is less likely to deal routinely with infectious diseases more common

to larger metropolitan areas, it is not as if they do not exist.

"We have somewhat of a skewed perspective here. We don't see as many inner city infections, where tuberculosis or HIV are larger problems, but they still occur here," he said. "Because people travel more, what might have been an isolated community a few years ago is no longer. We are dealing with a more diverse patient public, and we have to be ahead of the learning curve to be ready for anything.



"We are right on the route between Minneapolis and Chicago. People get on airplanes. We have local companies with international plants and offices; we have the university here, with foreign students, guest lecturers and other visitors. You never know what's going to be coming through the door. So we have to be prepared for the unexpected."

Prepare for the Unexpected

The most surprising infectious condition that he has diagnosed recently? "Malaria," Wedro said. "It was someone who had recently traveled abroad. We did run a special blood test to determine that it was indeed malaria."

Though malaria is not quite a common disease found along the banks of the Mississippi and environs nearby, other mosquito-borne

maladies pose a problem.

"We do have an encephalitis season," he said. "We get it in spurts around here, three or four a season. The health department keeps track of incidences. That's a viral infection that can make people pretty sick. If someone has a bad headache or is lethargic, I think, 'OK, it might be encephalitis, or perhaps a brain tumor.

You need to consider the infectious disease aspect as part of a differential diagnosis. I need to find if there is bleeding in the brain, or if the headache is

accompanied by vomiting; if the person has a fever. I would run down the list of options just as I would if the patient had chest pain — okay, is it indicative of a heart attack, could it be pneumonia, or something else?"

Wedro said that ER doctors will follow basic guidelines that help them diagnose conditions, but they keep the worst case scenario in mind when

prescribing treatment.

"We don't get the opportunity for a lot of follow up," he reiterated. "Sometimes we only get one shot."

If an ER physician is to err, he said, he would prefer it be on the side of caution when it comes to infections.

"We need to remind ourselves that, sure, a child coming into the ER at 3:00 a.m. with a fever might at first look benign, but it could be life-threatening," he said. "Infections such as meningococcus are real killers. We have to look at where the infections are located, such as inflammation of the epiglottis. Something that appears benign can be dangerous. We have to presume that no matter what it looks like initially, that someone is here because they have an emergency."

That's why, from the ER standpoint, the evaluation is crucial, he added, focusing on the evidence available while ruminating over the possibilities.

"We look at all the information, reminding ourselves of the vulnerability of the very young, the elderly, and the immuno-compromised, like people undergoing chemotherapy," he said. "We run this full gamut; knowing, for the most part, most people don't have terrible things happen. But we follow these standards, just hoping to catch something early so nothing disastrous happens."

Does Happy Mean Healthy?

ER physicians are certainly aware of the problems associated with overuse of antibiotics. But they are compelled by the nature of their role and of the lack of control over whether the patient will abide by their recommendations to overcompensate when confronting infectious diseases. Occasionally, when an emergency doctor determines that antibiotics are not necessary, problems arise. Patients prefer a prescription over education about overuse of antibiotics.

"That type of patient education takes time and effort. One of the problems in medicine today is that customer satisfaction is more important than patient satisfaction. And if you start looking at patients as customers [demanding antibiotics], you start losing perspective."

Wedro is not entirely cynical, however.

"Ultimately, if you do right by your patient, they will appreciate it, and that is most important."

One aspect is making his job easier: a more informed public.

"People are better educated about their health; they know more, and understand better when it is prudent to see a physician.

Another important aspect is that the legislature just determined that

a patient does not need pre-approval from a health insurer if he or she believes a condition warrants a visit to the ER."

This can be crucial, he added, particularly in the case of infectious diseases.

"Antibiotics don't work if you don't go to the doctor soon enough," added Wedro. "The earlier you see someone, the more difference it can make. The downside, of course, is that the earlier you go to the ER, the harder it is to make a diagnosis."

"When considering infectious disease, from an emergency room physician's vantage point, we must assume the worst things that it could be, then work backwards."

—Ben Wedro, MD

Again, in such cases, Wedro would urge that people take preventive measures and see a physician.

"I recently had two cases involving infections in which the patients waited too long. By the time they came in, there was little we could do. They both died."

Worst of the Worst

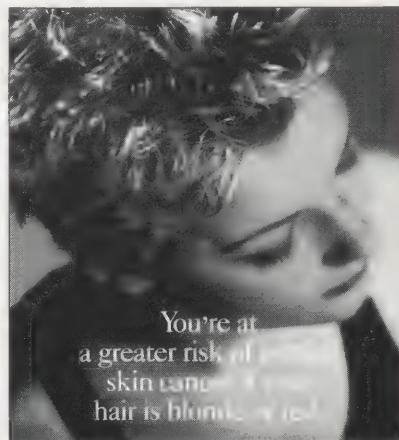
"I think that the worst infection I've seen was due to faulty home canning," said Wedro. "This person developed a severe case of botulism, and was hospitalized for nearly a year."

Food-borne infections, from poor food handling, and lack of hand-washing are common, he said.

"We all do a lot of things too quickly, and either don't wash off

food properly or do not thoroughly cook meat well enough."

Hand-washing, especially in health care settings, is another serious problem, and he added that "doctors are often at fault. And let me add something I hope physicians will consider. I wonder how often stethoscopes are cleaned?"



(Assuming your hair is really blonde or red.)

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A New Reason to be Nervous about Ticks

By Marc Kennedy, Special to WMJ

People who are nervous about tick-borne disease have something else to worry about in addition to Lyme disease. It's called human ehrlichiosis, and comes in two varieties: HGE "human granulocytic ehrlichiosis," and HME "human monocytic ehrlichiosis."

First described in 1986, the disease was linked to *Ehrlichia canis*, known to cause hemorrhagic illness in dogs, horses and sheep, according to an article in *Clinician Reviews*, 1997. But in 1991, evidence in Arkansas pointed to a related species, *E. chaffeensis*, as the cause of HME, producing leukopenia and thrombocytopenia. More than 400 cases of HME were reported by 1997 in nearly 30 states across the country.

However, a different strain, HGE, was identified in Minnesota and Wisconsin in 1994. Primarily affecting neutrophils, HGE is linked to *E. equi* and *E. phagocytophilia*, agents that afflict horses and cows. The article mentioned that "the incidence of HGE is not well known, but cases numbering in the dozens have been reported since 1990."

Edward Belongia, MD, believes the disease has been around, but it merely went unnoticed.

"Part of problem is that until recently, we haven't been looking for HGE, so we haven't seen it," said Belongia, infectious disease epidemiologist at the Marshfield Medical Research Foundation. "HGE is substantially less common than Lyme disease."

Belongia and the Marshfield

Clinic have just completed a study in unison with the Department of Public Health. They conducted surveillance on 13 northern Wisconsin counties to assemble basic information about the disease, incidence, related illnesses and relationship to Lyme disease.

"We are looking at risk factors as well," Belongia explained. "What hasn't been clear is how people are getting bitten. Is it occupational, recreational, or both? We expect that a vaccine will be developed soon for Lyme disease and HGE. The questions though are

While Lyme disease often is associated with long-term health effects, HGE is more of an acute ailment, with symptoms appearing within three weeks of exposure to ticks.

'who should get it? Which populations have the greatest chance of getting bitten?'"

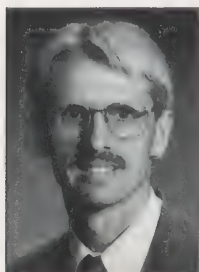
While Lyme disease often is associated with long-term health effects, HGE is more of an acute ailment, with symptoms appearing within three weeks of exposure to ticks. The Clinician Review article outlines the clinical presentation:

...fever and headaches that are moderate to severe, shaking chills, and general malaise. Other common symptoms include nausea, vomiting, myalgia and anorexia. Within five to seven days, an onset of symptoms — leukopenia, thrombocytopenia mild hepatitis and elevated serum hepatic aminotransferases — develops ... Human ehrlichiosis may progress to multi-system organ involvement including renal failure, hepatocellular injury, respiratory insufficiency with progressive respiratory distress and central nervous system impairment. Fatality is estimated to be 5% in both HME and HGE infections, with consequences more dire among the elderly.

Belongia added about half of patients that contract HGE are hospitalized. Oral or intravenous tetracycline or doxycycline are the treatments of choice, with the latter effective for both HGE and Lyme disease. He also warns attending physicians that few HGE cases develop a rash. If one appears, then he believes the person may have contracted Lyme disease as well.

"One thing for clinicians to keep in mind is that both diseases, HGE and Lyme disease, can present with febrile, flu-like symptoms, and that co-infection can occur. How often is unclear."

The literature urges physicians to deliver either antibiotic "upon



Edward Belongia, MD

clinical suspicion even while diagnostic test results are pending."

Ben Wedro, MD, added that an emergency room physician seeing someone with Lyme disease or HGE symptoms has to keep in mind that this may offer an opportunity for early intervention that he or she should take advantage of if only because the physician cannot be sure whether the patient will seek the recommended subsequent care.

"It could be a case of over-treatment and under-diagnosis," said the emergency physician at Gundersen Lutheran Medical Center in La Crosse. "But in the ER, you have basic guidelines to follow, so it's a little different than if a patient is seeing their regular doctor. You don't get a lot of follow up. Sometimes you only get one shot at it, so you treat them right away because you don't know if you'll see them again. You can't say, come back in a day or two, or see your own doctor when you get home, because you don't know if they will be compliant."

As more information from the recent study and other sources become available, Belongia added, it will help clinicians better understand the circumstances under which HGE occurs, especially as it

relates to incidence of Lyme disease. In the meantime, travelers, hikers, campers, and other outdoor enthusiasts should take precautions when visiting northwest Wisconsin or northeastern Minnesota to lessen the likelihood of exposure to ticks carrying Lyme disease, HGE or HME. These include wearing long-sleeved clothing, long pants with socks covering the cuffs, insect repellent, and carefully examining skin and clothing following forays into the wild.

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Infectious Diseases in Wisconsin

by Richard A. Proctor, MD

This issue of the WMJ focuses on infectious diseases that are seen in Wisconsin. The clinicians and epidemiologists provide some practical approaches and timely tips about diseases that we might see and certainly should think about.

BLASTOMYCOSIS IN VILAS COUNTY

Wisconsin has been a leader in defining the epidemiology of blastomycosis. (Klein et al. *N Engl J Med* 1986; 314:898-905) were the first to culture *B. dermatitis* from the environment and link it to an outbreak which occurred in Vilas County near Eagle River, Wisconsin. The article in this issue by Baumgardner and Brockman (see page 44) considers some of the features of the patients with blastomycosis from Vilas County. Blastomycosis is an airborne illness that develops when conidiophores enter the patients' lungs. The organism appears to require moist woodland soil that is enriched by animal droppings. To release the conidia, excavation of earth or a recent rainstorm, when the weather is warm, seems to be required. This sends the conidia into the air. Hence, the report by Baumgardner and Brockman of symptomatic development of blastomycosis in the winter might at first blush appear to contradict this disease epidemiology. However, a long incubation period can occur because the inoculum may be relatively small, the growth of the organism is slow, and the protective actions of the immune system keep it in check for a period of weeks. Also, the pneumonia tends to be indolent, leading to a longer time before the patient seeks medical advice. The observation that the number of cases has remained stable over time is reassuring that we are not finding more cases as the number of visitors and residents increase in Vilas County. The somewhat greater proportion of cases in females may indicate that they are spending more time in outdoor activities. The association of living within 1/4-mile of water could be interpreted that the organisms were inhaled while at home, but the

data also might be skewed in that this is a resort area and the large majority of people live close to water. A case-controlled study would be necessary to definitively show that this disease was obtained at home. The observation by Baumgardner and Brockman that fewer patients remembered outdoor activities is contrary to previous epidemiological findings. This may be a function of the study design which was retrospective, making reliance on chart notes or peoples' memories for relatively common, yet easily forgettable, activities (a fishing trip, gardening, hunting, etc.). While this remains a highly endemic area and physicians should think of blastomycosis in people who have visited Vilas County, we also must have very clear data before we accept the hypothesis that this organism can be contracted while at home, in the absence of nearby excavation.

ALLERGIC REACTIONS TO SULFONAMIDES

The paradox of allergic reactions to sulfonamides is that it develops in some of our most immunocompromised patients, i.e., in patients with AIDS who have the lowest CD4 counts. This has major clinical implications because trimethoprim-sulfamethoxazole (TMP/SMX) is also the most effective agent at preventing *Pneumocystis carinii* pneumonia (PCP), a common infection in patients with advanced AIDS. Most of the allergic reactions arise against the sulfa component which are characterized by a maculopapular rash. Ryan, et al. report on a protocol that successfully desensitized two-thirds of the patients to TMP/SMX, which is very heartening as this will allow this critical agent to be used (see page 22). Their protocol was as successful as other longer desensitization protocols. One might also speculate that more effective anti-retroviral therapy might also decrease the allergic reactions since the allergic reaction arises from toxic metabolites of sulfas that are higher in patients who are more severely immunocompromised. While these are positive developments, a note of caution is that patients with severe sulfa allergy, such as Stevens-Johnson Syndrome, should not be re-challenged with sulfas.

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GROUP B STREPTOCOCCAL BACTEREMIA, MENINGITIS AND ENDOCARDITIS

Gupta and Lofgren present an illustrative case of group B streptococcal bacteremia, meningitis, and endocarditis (see page 39). Previously, this organism was generally associated with neonatal and puerperal sepsis, but we should anticipate seeing this more frequently as the population ages. Diabetes mellitus, cancer, and sclerotic valvular disease are all risk factors for infection and endocarditis, and these are more frequent in the elderly. The organism lives in the gut and may enter the blood stream when a fungating colon lesion is present. Although group B streptococci are usually quite susceptible to penicillins, a poor outcome is common, in part attributable to age and the co-morbid illnesses in these patients.

HIV TESTING AMONG WISCONSIN PRISON POPULATION

Hoxie, et al. report on HIV-1 testing in prisoners (see page 28). The Wisconsin prison population has a low and stable HIV-1 seroprevalence over the past decade, but testing is still voluntary, hence one-third of all positive inmates declined to be tested. The finding that the rate of positivity is not increasing is welcome news, as prisoners tend to fall into some of the high risk categories (e.g., they are more likely to be from a low socioeconomic background and to be intravenous drug users). This suggests that education campaigns may be having some impact on the HIV-1 epidemic. Another important feature of the article is that hepatitis B markers were five-fold higher than the HIV-1 seropositivity. Hepatitis B has both short-term and long-term risks for liver failure and hepatocarcinoma. The use of hepatitis B vaccines should reduce this over the years, but universal precautions against exposures should be practiced not only for HIV, but also for hepatitis viruses. From a clinician's perspective, I find it unfortunate that HIV infection is not treated like any other disease where blood tests can be obtained when needed and without special consent procedures. This does have some import in that counseling and early institution of anti-retroviral therapy which are important for patients. In addition, administration of anti-retroviral therapy following accidental exposure is more effective when given quickly after an exposure; but because this treatment can be toxic, urgent therapy is best reserved for people with high risk exposures, which includes known HIV-1 positive individuals.

HEPATITIS A REPORTING

Even though we have a state statute requiring prompt and complete reporting of hepatitis A in Wisconsin, the article by Reels, et al. (see page 32) once again demonstrates that it remains an impor-

tant, preventable, and often inappropriately handled problem. More than 25% of hepatitis A viral infections were not reported by clinicians and an equal number were not reported in a timely manner. This means that the infection is allowed to spread further in the community, and it eliminates the option of using immune globulin to protect people that have been exposed. There are probably multiple reasons for this lack of reporting, including a lack of knowledge by the clinician, slowness of receiving laboratory reports, busy practices where time spent on paper work is often deferred and/or forgotten, a lack of reimbursement for filling out forms, and time pressures placed on physicians practicing in HMOs where the number of minutes/patient is being reduced and where filling out state forms is negatively rewarded by HMO managers. Also, physicians often believe that the laboratories doing the testing will report the test to the Division of Health, but laboratory personnel are over three-fold worse than physicians at reporting positive results with fewer than 20% of cases being reported. Perhaps, a \$25.00 finder's fee (to cover time) plus an electronic link to the State database might improve this distressing situation. In the long run, the program might pay for itself in terms of reducing the costs of immune globulin provided by the state.

LEGIONNAIRE'S DISEASE

Krone's report on a case of Legionnaire's Disease (see page 41) emphasizes the need for inclusion of an antibiotic with activity against *Legionella* sp. in patients with community acquired pneumonia. This is especially important when the patient is very ill, has a heavy smoking history, and has multi-lobe pneumonia as common cause of community acquired pneumonia. Recently, S. Chambers (who spent some of his training time in Madison and now is in Christchurch, New Zealand) reported at the Interscience Conference on Antimicrobial Agents and Chemotherapy meeting (Oct 1997 in Toronto) that *Legionella* sp. were found in 20% of all cases of community acquired pneumonia. He used polymerase chain reaction (PCR) technology on expectorated sputum to make the diagnosis. The cases were confirmed by drawing acute and convalescent sera and demonstrating a specific antibody rise against the organisms identified by PCR. Culturing and fluorescent antigen detection in the sputum were insensitive, missing approximately 75% of cases. He also found that multiple *Legionella* sp. other than *L. pneumophila* were recovered, which is important in that these are not identified by current immunofluorescence techniques. Both macrolides (erythromycin, azithromycin, and clarithromycin) and the fluoroquinolones (ciprofloxacin, levofloxacin, etc.) have excellent activity against *Legionella* sp. A recent review suggests that

fluoroquinolones may be the most effective agents. Rifampin is often added to severe cases. Hence, these drugs should be considered in treating community acquired pneumonia.

E. COLI O157:H7 IN RURAL WISCONSIN

When a patient enters with bloody diarrhea, *E. coli* O157:H7 should be considered. The treatment is supportive, and antibiotic therapy does not change the course of the illness. Rare complications such as hemolytic uremic syndrome and thrombocytopenic purpura are heralded by fever, which should alert the clinician to institute special supportive measures. The report by Cai and Olson on cases from rural Wisconsin confirms these previous observations (see page 50). Their cases were sporadic, and they found no evidence for an outbreak. In rural Wisconsin, people may be especially at risk for infection with *E. coli* O157:H7 because drinking raw milk and eating raw beef (beef tartar) are common activities which carry the risk of *E. coli* O157:H7 disease. All cases should be promptly reported to the Division of Health because *E. coli* O157:H7 does cause outbreaks which can lead to fatalities, especially in the young and elderly. Thus, even though no cases were identified in Marshfield in December and January, I am concerned about not looking for the organism because rapid identification of an outbreak, which can occur in any month, may save lives.

Sulfa Hypersensitivity in Patients with HIV Infection: Onset, Treatment, Critical Review of the Literature

Charles Ryan, MD; Michael Madalon, RH; Donald W. Wortham, MSL;
and Frank M. Graziano, MD, PhD, Madison

ABSTRACT

Trimethoprim/Sulfamethoxazole is the most effective medication used in both the treatment and prevention of *Pneumocystis carinii* pneumonia (PCP) in patients with HIV/AIDS. Its use, however, is accompanied by a high incidence of adverse reactions, especially fever, myalgia and rash (sulfa hypersensitivity). In a group of our patients, we have examined the clinical parameters at the time of onset of sulfa hypersensitivity, and the success of a desensitization protocol for this adverse event. We also have performed a comprehensive review of the literature on sulfa hypersensitivity and have compared our results to those previously reported in the literature. Our findings indicate that the sulfa hypersensitivity reaction is more likely to develop in patients with advanced disease and that desensitization can restore tolerability to the drug in approximately two thirds of those who attempt it.

INTRODUCTION

Numerous studies have demonstrated that 160 mg Trimethoprim - 800 mg Sulfamethoxazole (TMP/SMX) is the drug of choice in the treatment of and primary and secondary prophylaxis against *Pneumocystis carinii* pneumonia in individuals with HIV infection and AIDS.^{1,2,3} This drug has the advantage of being effective, yet easy to administer and inexpensive. The principle deterrent to the use of TMP/SMX is the relatively high incidence of adverse reactions in individuals

infected with HIV. The most common form of adverse event observed with TMP/SMX use in HIV disease is the hypersensitivity reaction. The hallmark of this reaction is a maculopapular rash, commonly associated with fever and myalgia (sulfa hypersensitivity). Anaphylaxis and other forms of severe reactivity (e.g., Stevens Johnson acute tubular necrosis, leukopenia, thrombocytopenia) do occur, but are relatively uncommon.⁴ Studies estimate that the overall prevalence of sulfa hypersensitivity in the general population is approximately 3.3%, while in the HIV infected population it is in the range of 17-20%.^{5,6} The incidence of adverse events to TMP/SMX is greater than 50% in individuals receiving the medication for treatment of active PCP.⁷ While the Trimethoprim molecule appears primarily responsible for the hematologic adverse events to TMP/SMX, sulfamethoxazole has been implicated as causative of the rash, fever, and myalgia adverse reaction.⁸

Because of the importance of TMP/SMX in the drug regimens for HIV-infected individuals, desensitization to the drug in those individuals with sulfa hypersensitivity is a common practice. In the study described below, we examine retrospectively our experience with the laboratory markers related to the onset of sulfa hypersensitivity and the treatment of sulfa hypersensitive individuals with our protocol of oral desensitization. We also review the literature on the mechanisms for sulfa hypersensitivity and the protocols available for sulfa desensitization.

PATIENTS AND METHODS

The population examined in this retrospective study consisted of all living individuals infected with HIV cared for at the University of Wisconsin Hospital and Clinics from 1992 through 1995. A total of 383 patient records were evaluated. From this patient base we determined the

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following: the number of individuals in our clinic meeting the definition of HIV infection or AIDS as outlined by the Centers for Disease Control,⁹ and the percentage of HIV-infected individuals who took TMP/SMX for primary or secondary prophylaxis against PCP. The prophylactic regimen consisted of one double strength tablet (160 mg Trimethoprim 800 mg Sulfamethoxazole) taken every day or three times per week. Patients began TMP/SMX therapy when their absolute CD4 count or CD4 percentage fell to or below 200 or 14%. TMP/SMX prophylaxis was also begun in those individuals with a rapidly falling CD4 count, or clinical evidence of progressive immune deficiency (e.g., thrush) even if their CD4 count or percentage were above those stated previously. Individuals who developed the hypersensitivity reaction to TMP/SMX were identified and studied as outlined below.

In this study of HIV-infected individuals the following were evaluated: laboratory parameters at the onset of sulfa hypersensitivity, and the outcome of sulfa hypersensitivity after desensitization. HIV-infected individuals who took TMP/SMX at a therapeutic dose but for a limited interval (e.g., for sinusitis or urinary tract infection) were not included in the study. Because a maculopapular rash is the hallmark of the hypersensitivity reaction, patients whose adverse event did not include a rash were excluded from this study. Due to the varied causes of fever, leukopenia and thrombocytopenia in HIV disease (e.g., opportunistic infection or drugs), without the presence of rash we could not reliably ascertain that sulfa was causative of the symptoms. Prior exposure or hypersensitivity to TMP/SMX (e.g., during childhood) could not be consistently determined. Laboratory parameters from 21 HIV-infected individuals with maculopapular rash (sulfa hypersensitivity) were obtained and compared to the same laboratory parameters in 45 age-matched individuals who took TMP/SMX for prophylaxis without adverse reaction. In all individuals the laboratory parameters were reviewed during the 60 days prior to the beginning of the drug. In no case was the laboratory data collected after TMP/SMX was prescribed. The laboratory parameters evaluated included: complete blood count, flow cytometry, chemistry survey (including but not limited to BUN, creatinine, AST, ALT, GGT, total bilirubin, alkaline phosphatase), and electrolytes. The data was analyzed using a two tailed t-test.

Desensitization of sulfa-hypersensitive individuals was performed with a 33-day protocol (Table 1). We reviewed the records of 14 individuals who underwent desensitization with this protocol.

Table 1

Protocol for TMP/SMX Desensitization

TMP/SMX suspension: 160 mg TMP + 800 mg SMX per 20 mL

Day	Dose	Mg TMP/mg Sulfa
1-3	1 drop	0.4/2
4-6	3 drops	1.2/6
7-9	5 drops	2/10
10-12	10 drops	4/20
13-15	15 drops	6/30
16-18	1 mL	8/40
19-21	2.5 mL	20/100
22-24	5 mL	40/200
25-27	7.5 mL	60/300
28-30	10 mL	80/400
31-33*	15 mL	120/600

*Then begin TMP/SMX 160 mg/800 mg tablets either every day or three times per week.

Seven of the fourteen received TMP/SMX as primary prophylaxis against PCP and seven received the drug as secondary prophylaxis. Successful desensitization was defined as the ability to tolerate TMP/SMX (160 mg/800 mg) daily or three times per week. Failure of the protocol was defined as cessation of the drug due to recrudescence of an adverse reaction which was too serious to warrant continuance of the protocol, or did not spontaneously abate over the period the protocol was administered.

RESULTS

The overall prevalence of sulfa hypersensitivity in our HIV-infected population was 17.5%. From the pool of 383 patients seen in our HIV clinic, 54% met the definition of AIDS by having a CD4 count below 200 cells/mL or below 14% of the total lymphocyte count or by having had an AIDS-defining opportunistic infection. Of the patients surveyed, 48% were currently taking TMP/SMX. Complete clinical records from the time of onset of sulfa hypersensitivity were obtainable from twenty-one patients (we did not include patients without complete records). This data had to include a patient report of the onset date and availability of all the laboratory parameters outlined in the Methods section. Significant differences between the control group and the group with sulfa hypersensitivity were found only in the flow cytometry data (Table 2). The average absolute CD4 count and percentage for the group that developed sulfa hypersensitivity when given the drug was 157 cells/mL and 10%. These values were significantly different when compared to 269 and 15.5% in the group that did not develop hypersensitivity when given TMP/SMX.

Table 2

Laboratory Data at the Time TMP/SMX Prophylaxis Began

Variable	Hypersensitivity to Sulfa		No Hypersensitivity		P value
	N=21	St Dev	N=45	St Dev	
Age	32.21		34.00		
CD4%	10.10	6.95	15.46	8.20	0.012+
CD4 ABS*	157.52	157.00	269.02	161.60	0.011+
CD8 ABS	818.78	522.00	984.07	587.50	NS
CD4/CD8	0.22	0.23	0.31	0.2	NS
CD3 ABS	1077.33	630	1370.33	667.85	NS
CD19%	9.09	4.91	9.08	6.22	NS
CD19 ABS	147.86	105.5	167.47	124.71	NS

* ABS - Absolute CD4 count

+ Comparison between the hypersensitivity to sulfa group and no hypersensitivity

The relative risk for a sulfa hypersensitivity reaction was stratified by CD4 count and percent. Patients with CD4 counts below 200 were overall 5.67 times more likely to develop a hypersensitivity reaction to sulfa than those above 200. Interestingly, patients who began TMP/SMX prophylaxis with CD4 counts between 50 and 100 were 26 times more likely to develop sulfa hypersensitivity.

Fourteen of the 21 patients attempted our 33-day desensitization protocol. The remaining seven either chose not to attempt desensitization, were not deemed reliable enough to comply with the 33-day protocol and/or received prophylaxis with another drug (e.g., Pentamidine, Dapsone). Of the 14 patients who underwent desensitization, one patient died (unrelated to the desensitization protocol) before completing the protocol. Nine of the thirteen (69%) remaining patients were able to complete the protocol without complication. After six months, eight of the nine were still living, and seven of these eight desensitized patients were still tolerating the drug. The remaining patient tolerated the full desensitization protocol but developed a maculopapular rash and fever after one week at the prophylactic dose. This patient was once again successfully desensitized (to sulfadiazine) after developing CNS toxoplasmosis. Oral steroids were not used in any patient who was ultimately desensitized. Antihistamines (OTC diphenhydramine or hydroxyzine) were suggested if mild skin reactivity developed.

Patient data was further examined based on the clinical situation in which prophylaxis with TMP/SMX was begun. Of the seven individuals who had sulfa hypersensitivity after receiving the drug as primary prophylaxis (mean CD4 count 117 cells/hr), three had successful desensitization. In the group with sulfa hypersen-

sitivity who received TMP/SMX as secondary prophylaxis (average CD4 count 31 cells/ml) six of six successfully completed the desensitization protocol. Of the patients who failed the desensitization protocol, three experienced a rash, three had fever, two experienced only pruritus and one complained of headache. None wanted to continue the protocol. None of the patients experienced shortness of breath and there were no life-threatening events.

DISCUSSION

Our data confirm that the incidence of sulfa hypersensitivity is increased in individuals with HIV infection and AIDS. Individuals most vulnerable to the sulfa reaction in our study had absolute CD4 counts in the range of 50-100. These results add to other data that suggest the period of advanced disease is the time when adverse reactions to TMP/SMX are most likely to develop.¹⁰

A number of different mechanisms for sulfa hypersensitivity have been investigated. Increased production and decreased clearance of the reactive metabolites of sulfamethoxazole are the most studied and most likely of these mechanisms to cause sulfa hypersensitivity in individuals with HIV infection. Impaired detoxification of these same metabolites secondary to glutathione deficiency in AIDS patients has been implicated, but remains controversial.¹¹ IgE mediated mechanisms are involved in only a minority of patients who develop anaphylactoid reactions.

Sulfamethoxazole is metabolized through one of two metabolic pathways. The metabolism that predominates in most cases is the acetylation pathway. This pathway produces N-acetylsulfamethoxazole, a nontoxic molecule excreted in the urine. The alternative pathway of metabolism, through the hepatic cytochrome

Table 3
Patient Cost* for Medications used in PCP Prophylaxis

Drug	Dose	Cost
TMP/SMX	160 mg/800 mg/day	\$8.70
+Dapsone/	50 mg/day	\$8.88
+Pyrimethamine/	100 mg/week	\$5.13
+Leucovorin	25 mg/week	\$20.53
Pentamidine (inhaled)	300 mg/month	\$23.40
Atovaquone suspension	750 mg/5mL/day	\$315.23

*Cost to Patients at the University of Wisconsin Hospitals and Clinics Pharmacy for a 30 day supply.

+These 3 medications are given together - total \$34.54.

p450 system, produces a reactive metabolite, sulfamethoxazole hydroxylamine. This metabolite can generate an immune response and is also directly toxic to lymphocytes *in vitro*.¹² Reduction in acetylation rates enables more drug to be metabolized through the cytochrome P450 system. While the kinetics of metabolism are largely genetically determined, disease can shift the balance between these two pathways. The dynamics of this process have been studied in both HIV-negative and HIV-positive subjects.¹³ Ninety percent of HIV-negative individuals with sulfa hypersensitivity are "slow acetylators". Among HIV-positive individuals, it has been demonstrated that the prevalence of slow acetylation increases with disease progression. Patients with AIDS and acute illness have the highest prevalence of slow acetylation (93%) and higher levels of hydroxylation product than stable AIDS patients or asymptomatic HIV-positive individuals.¹¹⁻¹³

The proven superiority and cost effectiveness (Table 3) of TMP/SMX in the treatment of and prophylaxis for PCP in advanced disease suggests that the need for desensitization is greatest in this group of individuals. While in relatively small numbers, our data suggests that desensitization for sulfa hypersensitivity was least successful in the group receiving it as primary prophylaxis and with higher CD4 cell counts (mean 117 cells/ml). The study by Carr et al,⁸ describes a similar pattern. In this study, those individuals who failed desensitization had a statistically significant higher average CD4 count. This would suggest that targeting desensitization to those individuals with the more advanced disease will in all likelihood lead to successful tolerance of TMP/SMX.

Numerous sulfa desensitization protocols have been described in the literature.¹⁴⁻¹⁷ The length of published desensitization protocols ranges from 5 hours to 10 days. The average length of the protocol is approximately 5 days.

Experience with penicillin and other drugs led to the belief that a longer desensitization period increases the likelihood of success. With this in mind, the observation of the success of TMP/SMX against PCP motivated us to assure greatest success for desensitization with a prolonged protocol. Our 33-day protocol, however, was no more successful than the 5- to 10-day protocols described in the literature. The multiple factors involved in the onset of sulfamethoxazole hypersensitivity, however, suggest that desensitization is independent of the time involved. In a study examining rechallenge of sulfa hypersensitive patients (31 subjects) after one to two weeks off TMP/SMX, 45% of patients were able to continue to take the drug prophylactically after rechallenge with usual doses.⁸ This success rate is somewhat lower than longer desensitization procedures (approximately 60-70% success). Unanswered in the literature is the time that must safely pass between the onset of hypersensitivity and the rechallenge or desensitization.

Since no one desensitization protocol is clearly more efficacious, we believe any protocol may be employed with similar hopes for success. Because of the similarity of the success rates of these protocols, the question then arises as to whether using a prolonged protocol is of any value. This question remains unanswered. While it is likely not wise to attempt desensitization in an individual with a severe reaction to sulfa (e.g., Stevens Johnson reaction, nephritis, anaphylaxis), the literature¹⁴⁻¹⁷ clearly demonstrates that desensitization (for sulfa hypersensitivity) does provide an increase in the number of patients able to safely continue using this important drug. By a more thorough examination of the causes of sulfa hypersensitivity we may be able to develop a more successful strategy for overcoming this difficult problem in the prevention of PCP in HIV-infected individuals.

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HIV Seroprevalence Among Male Prison Inmates in the Wisconsin Correctional System

Neil J. Hoxie, MS; Mei-Hoa Chen, BS; Audrey Prieve, BS; Brent Haase, BS;
John Pfister, MS; and James M. Vergeront, MD, Madison

ABSTRACT

Objective

To estimate HIV seroprevalence and the acceptance of voluntary HIV testing among male inmates entering the Wisconsin Correctional System during July 1, 1994-June 30, 1995, and compare these estimates with similar data obtained in 1987-1988.

Methods

A blinded HIV seroprevalence survey concurrent with a review of voluntary HIV antibody testing records.

Results

HIV test results were obtained for 3,681 (89%) male prison entrants during the study period; 26 (0.7%) were HIV-1 seropositive. Based on this estimate and the total number of male prison entrants (4,134), an estimated 29 HIV-1 seropositive male inmates entered the Wisconsin Correctional System during the study period. Eighty-four percent of all inmates were tested voluntarily. Among inmates testing HIV-1 seropositive, 69% were tested voluntarily.

Conclusions

These data suggest that HIV-1 seroprevalence among male prison inmates in Wisconsin is low, and is unchanged from the late 1980s; however, a large increase in the prison population has resulted in a substantial increase in the absolute number of HIV-1 seropositive inmates entering the correctional system. Although overall acceptance of voluntary HIV testing is high, nearly one third

of HIV-1 seropositive inmates declined voluntary HIV testing.

INTRODUCTION

HIV infection and AIDS have emerged as a major health issue within correctional systems. According to a 1994 joint survey by the National Institute of Justice and the Centers for Disease Control (NIC/CDC), more than 5,000 persons with AIDS were incarcerated in the U.S. and more than 4,500 inmates had died of AIDS since the start of the epidemic. HIV seroprevalence data for correctional populations is difficult to compare, however, the NIC/CDC study showed that rates of HIV infection varied greatly between correctional systems. Most systems which have HIV seroprevalence data report HIV seroprevalence of less than 1%, although rates as high as 20-26% were reported.¹

Surveys were conducted in 1986, 1987, and 1988 to estimate HIV seroprevalence among male entrants into the Wisconsin Correctional System, and to evaluate the acceptance of voluntary HIV testing.² This report presents the results of a similar survey conducted among male inmates entering the Wisconsin Correctional System during the period July 1, 1994 through June 30, 1995. The purpose of this survey was to determine if HIV seroprevalence and/or the acceptance of voluntary HIV testing had changed in the seven years since the earlier studies.

METHODS

In the Wisconsin Correctional System, new male inmates are admitted to a central intake facility where they receive medical examinations, provide blood specimens for routine hepatitis B testing, and are offered the opportunity to have voluntary HIV antibody testing. Blood specimens are sent to the Wisconsin State Laboratory of Hygiene (WSLH) where hepatitis B surface antigen (HBsAg), hepatitis B surface antibody (HBsAb),

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Table 1. Results of HIV-1 testing of male inmates entering the Wisconsin Correctional System between July 1, 1994 and June 30, 1995

	Tested	HIV-1+	%HIV-1+	Odds ratio	95% CI	p-value
Total	3,681	26	0.7%	N/A	N/A	N/A
Test type						
Voluntary test	3,077	18	0.6%	2.3	0.9,5.5	0.06
Blinded test	604	8	1.3%			
Sentencing jurisdiction*						
Milwaukee County	1,494	15	1.0%	2.2	0.9,5.4	0.09
Other counties	2,136	10	0.5%			
Race*						
Black	1,716	22	1.3%	6.4	2.2,25.4	<0.001
Other**	1,961	4	0.2%			
Age Group						
30 or over	1,479	20	1.4%	5.0	1.9,15.3	<0.001
Under 30	2,202	6	0.3%			
Hepatitis B marker(s)*						
Present	466	18	3.9%	15.9	6.5,42.1	<0.001
Absent	3,215	8	0.2%			

* Sentencing jurisdiction is unknown for 51 inmates one of whom was HIV-1 seropositive; race is unknown for 4 inmates none of whom was HIV-1 seropositive, hepatitis B markers are unknown for 7 inmates none of whom was HIV-1 seropositive.

** Among white inmates 4 of 1,851 (0.2%) were HIV-1 seropositive.

and hepatitis B core antibody (HBcAb) assays are routinely performed. HIV antibody testing is performed if the inmate has provided voluntary consent. After testing is complete, intake sera are frozen and retained in a serum bank.

A list of all male inmates who entered the Wisconsin Correctional System between July 1, 1994, and June 30, 1995, was obtained from the Wisconsin Department of Corrections. For each listed inmate, available intake hepatitis B serologic and voluntary HIV antibody test results were obtained from WSLH records. If hepatitis B test results, but no voluntary HIV antibody test results, were on file at the WSLH, stored sera were retrieved, identifying information removed (specimen blinding), and HIV antibody testing performed. An absence of hepatitis B test results on file at the WSLH indicated that no intake blood specimen had been received. The protocol for blinded HIV antibody testing was approved by the University of Wisconsin Human Subjects Committee and the Wisconsin Department of Correction Research Committee.

HIV antibody testing was performed using the WSLH HIV-1/HIV-2 combination testing protocol. All specimens were initially screened using a combination HIV-1/HIV-2 enzyme immunoassay (EIA) (Abbott Laboratories) and initially reactive specimens were retested in duplicate. For specimens

repeatedly HIV-1/HIV-2 EIA reactive, an HIV-1 Western Blot assay (Cambridge Biotech) was performed. Specimens with at least two bands from among p24, gp41, or gp120/160 demonstrated by Western Blot assay were considered HIV-1 positive.³ HIV-1/HIV-2 EIA repeatedly reactive specimens that were HIV-1 Western Blot negative or indeterminate were tested by HIV-2 EIA (Genetic Systems) and those initially HIV-2 EIA reactive were retested in duplicate. HIV-2 repeatedly reactive specimens were tested by HIV-2 Western Blot (Cambridge Biotech).

In this study, the "presence of hepatitis B marker(s)" is defined as a reactive assay for at least one hepatitis B serologic marker from among HBsAg, HBsAb, and HBcAb.

Data were analyzed using Epi Info Version 6.02 software (Centers for Disease Control, Atlanta, GA), which was also used to calculate odds ratios (OR), Fisher Exact 95% confidence intervals for the OR, and Fishers exact p-values. Confidence intervals for the estimates of HIV seroprevalence values were calculated using Confidence Interval Analysis software.⁴

RESULTS

Among 4,134 males inmates entering the Wisconsin Correctional System between July 1, 1994, and June 30, 1995, 3,713 (90%) had intake he-

patitis B serology and/or voluntary HIV antibody test results on file at the WSLH. Of these, 3,077 (83%) had voluntary HIV antibody test results on file at the WSLH; among the remaining 636 inmates, 604 (95%) had banked sera located and tested blindly for HIV antibodies. All together, HIV test results were obtained for 3,681 (89%) male prison entrants during the study period.

Among all inmates who had voluntary or blinded HIV antibody tests, 26 [0.7% (95% CI 0.5%, 1.0%)] were HIV-1 seropositive; no inmate was HIV-2 seropositive. Based on this estimate of HIV-1 seroprevalence and the total number of male prison entrants, an estimated 29 (95% CI 21,41) HIV-1 seropositive male inmates entered the Wisconsin Correctional System during the study period.

HIV-1 seroprevalence was significantly higher among black inmates compared with inmates of other races (1.3% vs 0.2%, $p<0.001$), and among inmates 30 years of age or older compared with inmates less than 30 years of age (1.4% vs 0.3%, $p<0.001$) (table 1). HIV-1 seroprevalence was also higher among inmates who had positive hepatitis B markers. One of every 26 (3.9%) inmates with a hepatitis B marker was HIV-1 seropositive compared with one of every 402 (0.2%) inmates without a hepatitis B marker ($P<0.001$). The association of HIV-1 seroprevalence and the presence of a hepatitis B marker remained after controlling for race and age (Mantel-Haenszel adjusted OR=12.1, 95% CI 1.0,28, $P<0.001$).

The point estimate of HIV-1 seroprevalence was lower among inmates tested voluntarily than among inmates tested blindly (0.6% vs 1.3%, $p=0.06$), and was higher among inmates sentenced from Milwaukee County than among other inmates (1.0% vs 0.5%, $p=0.09$), but neither of these differences was statistically significant (table 1).

Among inmates tested, 84% (3,077/3,681) were tested voluntarily. Voluntary test rates were identical for inmates sentenced from Milwaukee County and from other counties [84% (1,249/1,494) vs. 84% (1,784/2,136), $p=0.98$]. Likewise, voluntary test rates were similar for black inmates and inmates of other races [83% (1,421/1,716) vs [84% (1,653/1,961), $p=0.24$]. Voluntary test rates were lower for inmates 30 years of age or older compared with inmates less than 30 years of age [81% (1,192/1,479) vs. 86% (1,885/2,202), $p<0.001$], and for inmates with a

hepatitis B marker compared with inmates without a hepatitis B marker [80% (372/466) vs. 84% (2,705/3,215), $p=0.02$].

Acceptance of voluntary HIV testing was lower among HIV-1 seropositive inmates than among HIV-1 seronegative inmates [69% (18/26) vs 84% (3,059/3,655), $p=0.05$]. Among eight HIV-1 seropositive inmates tested blindly, seven (88%) were thirty years of age or older, and five (62%) were positive for hepatitis B marker(s).

DISCUSSION

During July 1, 1994 to June 30, 1995, HIV-1 seroprevalence among males entering the Wisconsin Correctional System was 0.7%. Similar studies estimated HIV seroprevalence among newly incarcerated male inmates in Wisconsin to be 0.5% (9/1,689) in 1987 and 0.6% (9/1,621) in 1988.² The differences between the 1987-1988 estimates, and the results of this survey are not statistically significant ($p=0.70$). Thus, HIV-1 seroprevalence among male prison entrants in Wisconsin remains low and this study provides no evidence that HIV-1 seroprevalence was different during the current study period than it was during 1987 and 1988.

Although rates of HIV-1 infection during this study period were comparable to those observed during the late 1980s, the number of male inmates entering the Wisconsin Correctional System has increased markedly. As a result there has been a substantial increase in the absolute number of HIV-1 seropositive male inmates entering the Wisconsin Correctional System, from nine per year during 1987 and 1988 to an estimated 29 during July 1, 1994 to June 30, 1995. This has implications for health care delivery, and for prevention of HIV transmission by inmates during their incarceration and after their release.

Overall acceptance of voluntary HIV testing by male prison entrants in Wisconsin is high and compared to rates during the late 1980s, has increased. In this study, 84% of all inmates were tested voluntarily compared with 71% in 1988.² However, a consistent finding of both this and past studies has been a lower acceptance of voluntary HIV testing for inmates who were HIV-1 seropositive. During this study period, nearly one in three (31%) HIV-1 seropositive inmates declined voluntary HIV testing, a rate similar to that observed during 1987-1988 (28%). Further, HIV-1 seroprevalence among inmates who declined voluntary HIV testing was more than twice that of inmates accepting voluntary tests.

The reasons for the higher HIV-1 seroprevalence among inmates who decline voluntary HIV antibody testing are not clear. It is possible that some HIV-1 seropositive inmates may have previously tested HIV positive. In our data, most (88%) HIV-1 seropositive inmates who were not tested voluntarily were more than thirty years of age, suggesting that they may have had opportunities to be previously tested. Inmates who are aware that they are HIV-1 seropositive may self-defer from voluntary HIV testing because they consider additional testing unnecessary, because they want to conceal their infection, or for other reasons. The extent to which HIV-1 seropositive inmates who decline voluntary testing are aware of their infection cannot be determined from these data.

It is also possible that some HIV-1 seropositive inmates who are unaware of their infection may selectively self-defer from voluntary testing. The 1994 NIC/CDC survey suggests that among prison inmates a common reason for declining voluntary HIV testing was fear of a positive result; put simply, many inmates "do not want any bad news¹." This attitude may be especially prevalent among inmates who believe that they have engaged in high risk behaviors. Our finding that voluntary HIV testing rates were lower among inmates who had hepatitis B marker(s), a group at high risk of HIV infection, may support this hypothesis.

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Hepatitis A Infections in Wisconsin: Trends in Incidence and Factors Affecting Surveillance, 1986–1995

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ABSTRACT

From January 1986 through December 1995, 4,143 cases of hepatitis A virus (HAV) infection were reported in Wisconsin. The annual hepatitis A incidence remained stable from 1986 through 1988, with a mean annual rate of 4.7 cases per 100,000 (endemic HAV incidence rate). During 1989-1993, the incidence of HAV infection increased with a peak in 1992 of 19 cases per 100,000 population. A large foodborne outbreak (1992) and community wide outbreaks among African American residents (1989-1993) and Native Americans residents (1991) were associated with these high rates of HAV infection. The community wide outbreaks affected different groups: among African Americans, incidence rates were highest in young adults 15-34 years old; among Native Americans rates were highest

in children 5-14 years old. Approximately 2,343 (57%) patients had no apparent risk factor (e.g., international travel, contact with person with HAV infection) for acquiring HAV infection. Factors limiting control of HAV infection in Wisconsin included poor reporting by laboratories (only 19% of all reported cases were independently reported to the Wisconsin Division of Health by a laboratory and fewer than 50% of these reports were from private laboratories), incomplete reporting by Wisconsin physicians or designees (74% of cases confirmed in Wisconsin laboratories were reported in 1995), failure to submit follow-up case report forms (14% of cases), and a prolonged interval between diagnosis and follow-up (≥ 15 days for 610 cases). Efforts should be enhanced to improve the reporting of cases of HAV infection by private laboratories, particularly through the use of automated electronic reporting.

INTRODUCTION

In 1995, hepatitis A was the eighth most commonly reported notifiable disease in the U.S.; 31,582 cases were reported.¹ The impact of hepatitis A virus (HAV) infections is substantial. Direct and indirect costs due to HAV infection in the U.S. were estimated to exceed \$200 million during 1987 when 25,280 were cases reported.² Current investigation and control efforts, which consist primarily of administration of immune globulin to contacts of persons with HAV infection, are labor-intensive and strain limited public health budgets.³ The licensure in 1995 and 1996 of two effective inactivated hepatitis A vaccines⁴ may provide new means of limiting HAV-related morbidity. However, the cost-effectiveness of mass vaccination against hepatitis A has not yet been demonstrated, and optimal vaccination strategies for use during outbreaks remain unclear.^{5,6} Prompt, accurate surveillance data are needed to maintain control of HAV infection using immune

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globulin (IG) and to develop effective vaccination activities.

In Wisconsin, suspect and confirmed cases of HAV infection are to be reported by physicians, infection control practitioners, and laboratories to local health departments (LHDs) within 24-hours to assure prompt case follow-up and interventions. The Wisconsin Division of Health (DOH) hepatitis A database is an ongoing electronic compilation of case reports submitted. Typically, when a physician suspects an HAV infection in the appropriate setting, a blood sample is obtained and sent to a laboratory to test for IgM antibody to HAV. When the laboratory reports that the patient has a positive IgM to HAV, the physician will then report the laboratory-confirmed case to the patient's LHD, using the DOH case report form. Physicians and laboratories are required by state statute to report both confirmed and suspected cases of HAV infection to the LHD within 24-hours of identification.

The LHD staff assess patient risk factors for infection, identify cases and case contacts in occupations at higher risk for transmitting HAV such as food handlers or staff of day care centers, and attempt to prevent additional new cases through appropriate administration of IG to case contacts. The LHD completes a second, more extensive form designed by the Centers for Disease Control and Prevention (CDC), which includes clinical, laboratory, and risk factor information. The different forms and reports (state, CDC and laboratory) are sent to the DOH for review, and data are entered into the DOH database if cases meet the Wisconsin case definition. The diagnosis of acute HAV infection depends on the detection of IgM antibody to HAV; only cases with unequivocally positive anti-HAV IgM tests are entered in the DOH database.

The current passive surveillance system for HAV infection in Wisconsin relies heavily on physician willingness to report suspect and serologically confirmed cases to LHDs. Studies have shown that passive reporting of HAV infections is generally incomplete.⁷⁻⁹ This report presents a comprehensive evaluation of the Wisconsin hepatitis A surveillance system, with the objectives of describing the epidemiologic features of hepatitis A in Wisconsin from 1986 through 1995, identifying problems in the system, making recommendations for improvement, and providing risk-related information to develop the most appropriate hepatitis A vaccination strategy in Wisconsin.

METHODS

Trends

Data regarding cases of HAV infection with illness onsets from January 1, 1986, through December 31, 1995, were analyzed to describe the trends of HAV infections in Wisconsin. Annual incidence rates were calculated by using census data for 1990 (the midpoint of our study). Incidences per public health region, age-group, gender, and race were calculated for each year in the study interval. Information on potential risk factors (e.g., contact with a person with HAV infection, intravenous drug use) was collected through a review of case report forms.

Laboratory reporting

In the U.S., the primary serologic test currently used to confirm acute HAV infection is manufactured by one company (HAVAB®-M, Abbott Laboratories). It is a microparticle enzyme immunoassay for the qualitative determination of specific IgM antibody against HAV (anti-HAV IgM) in human serum or plasma and is indicated for use as an aid in the diagnosis of acute or recent (usually six months or less) HAV infection. We obtained a list of laboratories in Wisconsin supplied with this test kit. Personnel in these laboratories were contacted by telephone to confirm that they performed HAV testing. Letters were mailed to the directors of the laboratories that conducted HAV-related tests. The letters described the purpose of the study and requested data for each patient who had a positive anti-HAV IgM test during 1995. Data requested included date of testing, patient name, date of birth, and date of onset of symptoms (if known). All identifying information was kept confidential. This list of definite HAV IgM positive cases was then compared with the 1995 case list generated from the DOH database to assess completeness of reporting.

RESULTS

Trends

For the years 1986-1995, 4,143 cases of HAV infection in Wisconsin were reported to DOH. Among cases, the male:female ratio during the period was 1.2:1; patient mean age was 28.6 years; 21% of the reported HAV infections occurred in children under age 15 years, and 57% occurred in persons aged 15-39 years.

The annual incidence of reported HAV infection in Wisconsin remained stable from 1986 through 1988, with a mean rate of 4.7 cases per 100,000, approximately half the national rate

Figure 1. Annual Incidence of Hepatitis A Infection in Wisconsin During 1986-1995. (a) statewide and in the United States, (b) by Wisconsin Division of Health public health regions, (c) by gender and race within the Southeastern region, and (d) by race within the other Wisconsin Division of Health public health regions. All incidence rates are depicted per year per 100,000 population. Please note the rate grid varies by category.

cases per 100,000 population

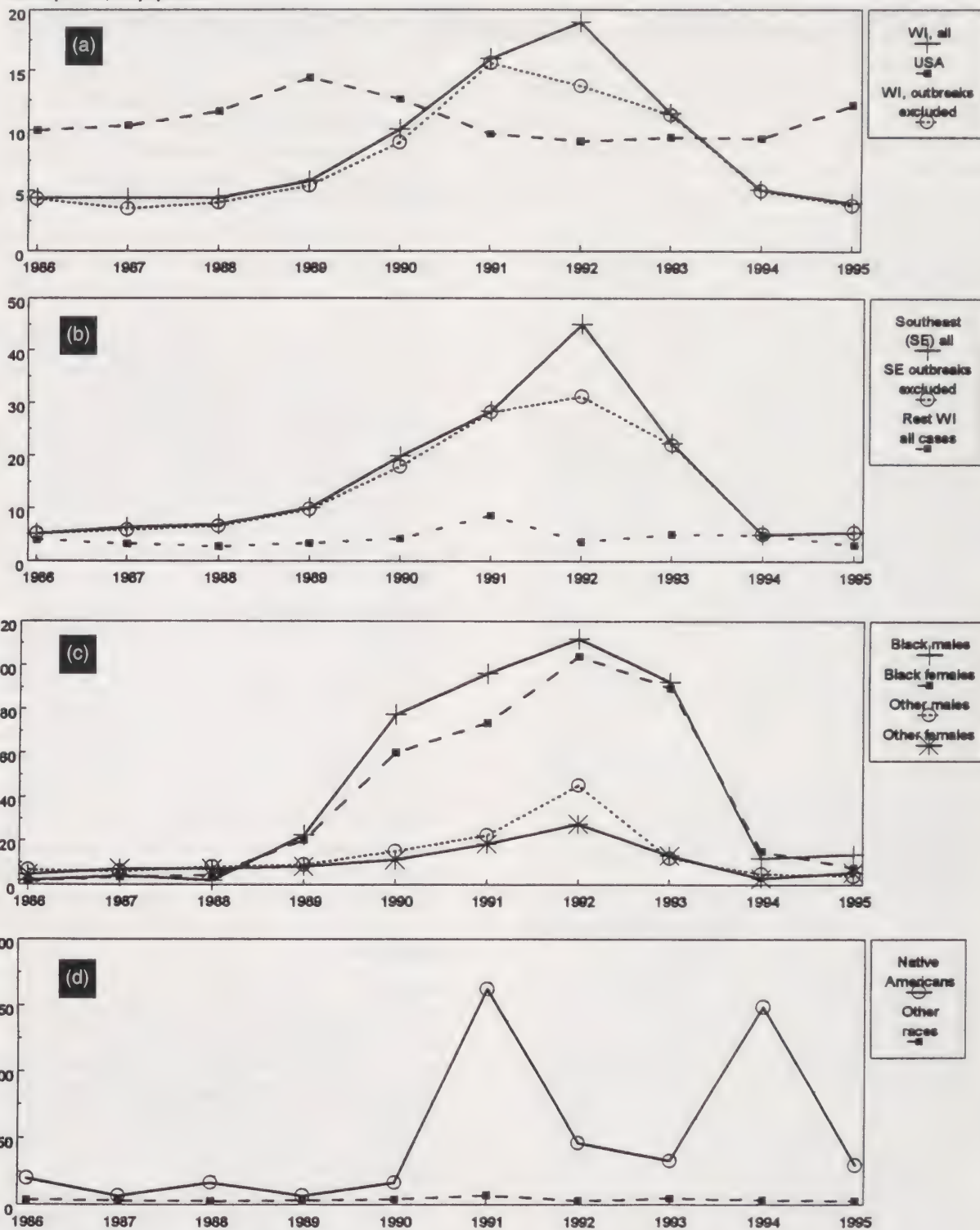


Table 1: Number of cases of reported hepatitis A virus (HAV) infection, by risk factor, 1986-1995, Wisconsin.

Risk factor	1986-1987†	1988-1989	1990-1991	1992-1993	1994-1995	Total (86-95)
Contact with						
HAV-infected person*	107 (24.6)	100 (19.9)	242 (18.9)	274 (18.4)	80 (18)	803 (19.3)
Outbreak related*	56 (12.9)	36 (7.2)	72 (5.6)	268 (17.9)	14 (3.1)	446 (10.7)
Daycare related‡	4 (0.9)	22 (4.4)	54 (4.2)	67 (4.5)	18 (3.9)	165 (4)
International travel‡	25 (5.8)	43 (8.6)	39 (2.9)	24 (1.6)	22 (4.9)	153 (3.7)
Other§‡	0	1 (0.2)	2 (0.2)	4 (0.3)	11 (2.5)	18 (0.4)
Multiple risk factors						
(from above)‡	13 (2.9)	30 (6.1)	64 (5)	81 (5.4)	27 (6)	215 (5.2)
No identified risk factor¶	229 (53.1)	267 (53.5)	803 (62.9)	771 (51.7)	273 (61.3)	2343 (56.5)
Total	434 (100)	499 (100)	1276 (100)	1489 (100)	445 (100)	4143 (100)

† Number of cases with risk factor (percentage)

* Statistically significant decreasing trend ($p < 0.05$, test for trend)

‡ No observed trend in proportions

¶ Statistically significant increasing trend ($p < 0.05$, test for trend)

§ Includes homosexual activity among men, IV drug use, and consumption of raw shellfish

(figure 1a). The incidence in Wisconsin started to increase in 1989 and reached a peak in 1992 of 19 cases per 100,000 population, approximately twice the 1992 national rate.¹⁰ By 1994, Wisconsin HAV infection rates decreased to pre-1989 levels. During 1992, a large foodborne outbreak (230 cases) of HAV infections associated with a single food handler occurred in the Southeastern public health region in 1992.¹¹ Point-source outbreak-related cases may bias trend analyses; accordingly, we also assessed incident data by excluding recognized foodborne outbreak-related cases ($n=446$ cases) from trend analyses (figure 1a). Differences between outbreak-adjusted and non-adjusted annual rates were minor except for 1992.

Comparison of the incidence of HAV infection in the Southeastern region (1990 population: 1.81 million) with that of the combined four other DOH administrative public health regions in Wisconsin (Southern, Western, Northern, North-eastern regions, referred to as rest of Wisconsin in figure 1b) indicates that the statewide increase in morbidity was primarily focused in the southeastern region, where rates during 1992 were sixfold higher than in 1986 (ninefold if outbreak-associated cases are included). This increase, which occurred gradually from 1989 through 1992, is suggestive of a prolonged community-wide outbreak; a subsequent decrease in morbidity occurred more rapidly. This region, which includes metropolitan Milwaukee, has almost 37% of the Wisconsin population (1990 population: 4.9 million). Peak rates in the combined four other public health regions occurred in 1991 and were roughly two fold greater than in 1986.

In the southeastern region, rates among male and female non-African American residents (White, Asian, Native American, and unspecified combined) followed similar trends and peaked in 1991 and 1992 (figure 1c). Peak rates in male and female African American residents were substantially greater but exhibited a gender disparity in 1990 and 1991; rates in African American males were almost 20% higher than the corresponding female rates during 1990-1991. In 1992, peak rates in African American men and women of roughly 100 cases per 100,000 represented a nearly 30-fold increase compared with the rates in these groups during 1986-1988. Rapid reduction in rates occurred between 1993 and 1994 to levels approximately twice those before 1989. In the southeastern region, 15- to 34-year old African Americans had the greatest increase in incidence; the combined gender rate for that age group in 1992 (166 per 100,000) was 40-fold greater than the 1986-1988 rate (4 per 100,000). The smaller peak in 1991 in the combined four other regions (figure 1b) was associated with increases in HAV infection rates among Native Americans (figure 1d), a population which experienced sharp increases in incidence in 1991 and 1994. Among Native Americans, children 5-14 years of age had the greatest increase in incidence; their 1991 rate (410 per 100,000) and 1994 rate (273 per 100,000) were nearly 18-fold and 12-fold greater, respectively, than their 1986-1990 rate (22.8 per 100,000).

We analyzed risk factors by two-year intervals during the study period (Table 1). The proportion of cases with unknown risk factors increased significantly during the study period (Chi-square test for

Table 2: Time intervals between date of diagnosis of hepatitis A virus infection and date of follow-up interview form in 2352 patients for whom the interval could be calculated, Wisconsin, 1986-1995.

Number of Days	1986-1987	1988-1989	1990-1991	1992-1993	1994-1995	1986-95
0 - 14 days	193 (74.2)	301 (77.9)	410 (69.6)	613 (73.6)	225 (79.2)	1742 (74.1)
≥ 15 days	67 (25.8)	85 (22.1)	179 (30.4)	220 (26.4)	59 (20.8)	610 (25.9)
Mean (days)	12.4	10.4	13.8	11.7	10.1	11.9
Median (days)	7	7	9	8	6	7

trend, $p < 0.05$). In contrast, the proportion of case-patients who had known contact with an HAV-infected person or who had foodborne outbreak-related cases decreased significantly (Chi-square tests for trend $p < 0.05$). Case proportions for child day care, international travel, and multiple risk-factor-related categories remained relatively stable throughout the study period.

Factors limiting surveillance

From 1986 through 1995, independent laboratory reports were submitted for 19% (781 cases) of all reported cases. The Wisconsin State Laboratory of Hygiene (WSLH) submitted 453 (58%) of the laboratory reports. In 1995, we identified 29 laboratories in Wisconsin that conducted serologic testing for HAV infection; 27 laboratories (93%) contributed data to our study, 26 for the entire calendar year of 1995 and one for July through December. During 1995, 156 cases were serologically confirmed in 22 laboratories. Four laboratories had no cases. The WSLH diagnosed only 13 (8%) of these cases. The DOH received reports of 115 (74%) of these cases through the existing reporting channels. Only 20 cases (17%) were reported directly by a laboratory.

For postexposure prophylaxis with IG to be effective, contacts of persons who are in the infectious phase of HAV infection must receive it within 14 days of exposure. Ideally, to assess timeliness of intervention, the time interval between exposure and administration of IG to contacts should be calculated. However, the case report form does not include information on the date of exposure or the date of IG administration. Therefore, the number of days between the date of diagnosis of hepatitis A infection and the date of completion of the follow-up interview form by the LHD served as a surrogate to evaluate the timeliness of interventions. Only 2,352 (64%) records had sufficient data (both dates provided) for this evaluation. The mean interval between diagnosis and completion of the follow-up form was 11.9 days for these 2,352 cases (Table 2). The proportion of cases

for which this interval exceeded 14 days ranged from 20.8% to 30.4%. The mean interval between diagnosis and follow-up form completion ranged from 11.1 days [region with the shortest interval, 95% confidence intervals (95%CI): 10.5 - 11.7 days] to 17.6 days (region with the longest interval, 95% CI: 13.5 - 21.7 days) among the five public health regions. This difference was statistically significant (non-overlapping confidence intervals).

A follow-up report form was not available for 574 (13.9%) cases. Public health regions differed greatly in follow-up efforts; the proportion of cases without follow-up forms ranged from 8% (228/2805 reports) to 61% (148/244 reports). The completion rates of interview questions on risk factors for acquiring HAV infection on the CDC form were generally good. Questions on day care or nursery exposure, household contact with a day care attendee, contact with a person with a confirmed case of hepatitis A, being employed as a food handler, international travel, or association with an outbreak all had completion rates exceeding 90%. Much lower completion rates were obtained for questions on eating raw shellfish (7%) and the more sensitive questions regarding drug use (19%) and sexual preference (12%).

DISCUSSION

Our review of Wisconsin surveillance data for HAV infection showed that community wide outbreaks were associated with the increase in HAV infection during 1989 - 1993. Different age groups in separate communities during distinct time periods were primarily affected. Review of information on case-report forms did not identify factors that would explain the propagation of the outbreaks. However, several factors limiting control of HAV infection were identified; they included poor reporting by laboratories, incomplete reporting by Wisconsin physicians or designees, failure to submit follow-up case report forms, and a prolonged interval between diagnosis and follow-up (≥ 15 days for 610 cases).

Large community wide outbreaks of HAV infection, which were frequently reported during 1950-1960, have become uncommon in the U.S., probably as a result of improved sanitary and housing conditions.¹² Outbreaks still occur occasionally among certain groups including specific religious groups, users of intravenous drugs, and homosexual men.¹³⁻¹⁶ Factors that promote transmission of HAV by the fecal-oral route in the presence of enough susceptible individuals are believed to sustain such outbreaks; such factors include large family size, crowding, and lower educational levels.

The sustained community wide outbreak among African American residents had unusual epidemiologic features. It lasted 48 months and affected mostly young adults 15-34 years of age, with a higher incidence among men. Previously reported community wide outbreaks lasted 6-18 months, and children aged 5-9 years had the highest incidence. The shift to this age group may be explained by reductions in asymptomatic HAV infection during childhood as a result of improving living conditions and sanitation, and consequently, persistence of susceptibility to HAV infection later in life, when HAV infection is likely to be symptomatic. The predominance of men among cases has been reported nationally in recent years; this trend could represent gender differences in high-risk behaviors and risk factors for acquiring HAV infection, including homosexual activity among men, international travel, and illicit drug use.

In Wisconsin, standard public health control measures were implemented during the sustained outbreaks, and reported rates of HAV infection eventually returned to usual endemic levels. A manual for LHD staff describing detailed algorithms for public health actions to prevent and control hepatitis A was developed by the DOH and was widely distributed in Wisconsin.¹⁷ A geographically targeted and age-specific hepatitis A vaccination program might offer the possibility of rapidly halting future community wide outbreaks. Limited experiences in well-defined communities have been promising and results of vaccine interventions in other outbreak settings are pending.¹⁸⁻¹⁹ The timely use of hepatitis A vaccine as an intervention during community wide hepatitis A outbreaks in heavily populated areas is likely to be logistically challenging and expensive to implement.

Our finding that 26% of cases had time intervals exceeding 14 days between date of diagnosis of HAV infection and date of completion of the

follow-up interview form was disturbing. Intervals exceeding 14 days from the time of HAV exposure to the earliest time that the public health system can intervene in preventing additional cases are excessively long. However, the interview dates on the paper forms likely overestimate this interval. The dates of phone calls between physician offices and LHDs, alerting the health departments of a possible case, along with dates when IG was administered to case contacts, would be of value to further evaluate this interval but are typically not recorded on the forms.

The exchange of information regarding HAV infection between private laboratories and the DOH is poor; fewer than 20% of reports of HAV infection were made directly by laboratories to the public health system and more than half of these were made by the WSLH. Successful surveillance systems should involve multiple sources of reporting, including physicians, hospital infection control practitioners, and clinical laboratories. Wisconsin and most other states have attempted to increase reporting by instituting mandatory reporting by clinical laboratories of at least some notifiable diseases. Laboratory reporting is often more rapid and comprehensive than reporting from physicians. In Vermont, of 1636 initial reports of confirmed cases of notifiable diseases during 1986, 71% originated from clinical laboratories, 10% from physicians' offices, and 19% from nurses, including hospital infection control practitioners and other sources.²⁰ In the current study, we noted that 74% of reports of HAV infection in 1995 were made by Wisconsin physicians or their designees. We could not ascertain the true number of cases of laboratory confirmed HAV infections in Wisconsin because of lack of data on positive test results obtained among Wisconsin residents whose specimens were tested in laboratories outside Wisconsin or in nonparticipating laboratories. Even so, over 25% of cases of HAV infection diagnosed in Wisconsin laboratories in 1995 were not reported by clinicians.

In Wisconsin, electronic linkage between public health agencies and laboratories could facilitate rapid and effective reporting from public and private laboratories in the future. Major obstacles include incompatibility of differing and often proprietary databases and the lack of detailed patient information (e.g., resident address or telephone number) needed to facilitate investigations. In addition, improved reporting from out-of-state laboratories must also occur. Currently, only some of the larger out-of-state laboratories routinely

report results to DOH and often these reports are not sufficiently timely to facilitate public health intervention.

In conclusion, our surveillance data indicate that sustained community wide outbreaks among African American and Native American residents were associated with high rates of HAV infection in Wisconsin during 1989-1993. Geographically and demographically focused hepatitis A immunization programs might enhance opportunities to prevent increased occurrences of HAV infection in the future. Hepatitis A vaccines are currently not licensed for use in children prior to their second birthday, and strategies to vaccinate large numbers of children are not likely to be implemented until hepatitis A vaccine is combined with other vaccines (such as hepatitis B vaccine and Hib vaccine) currently administered routinely during childhood.

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An Adult Male with Group B Streptococcus Bacteremia, Meningitis, and Endocarditis

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INTRODUCTION

Group B streptococci are well-recognized pathogens in the neonatal and postpartum periods. Serious group B streptococcal infections in older individuals are uncommon, with an estimated incidence of 2.4 cases per 100,000 persons.¹ This organism is now, however, increasingly identified in the adult population. The organism is frequently identified in the nasopharynx of normal individuals, and commonly identified in the gastrointestinal and genitourinary tract as well. Latent colonization of these sites with group B streptococci is a potentially overlooked source of frequently serious infections.

CASE PRESENTATION

A sixty-year-old man with a history of diabetes mellitus and stage B adenocarcinoma of the prostate presented to our hospital with diffuse lumbar pain and fever of six days' duration. The patient, who had completed radiation therapy for prostate cancer four months prior to presentation, underwent dental cleaning two weeks earlier.

Initial examination revealed fever of 101° F and a systolic murmur consistent with the patient's previously-established aortic sclerosis. Notably, there were no signs of meningeal inflammation, skin lesions, or prostate tenderness. Laboratory studies were remarkable for new leukopenia of 1700 cells/mm³ with 54% polymorphonuclear leukocytes and 42% band forms. Also of note was thrombocytopenia at 45,000/mm³ and serum creatinine of 2.4 mg/dl (previously 1.2). D-dimer, fibrinogen, fibrin degradation products, and red blood cell morphology were within normal limits. Urinalysis showed 5-10 white blood cells/high-power field, no casts, and 1+ bacteria, with no growth on culture.

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Within six hours of admission the patient rapidly became confused and somnolent. A lumbar puncture revealed cloudy CSF with white blood cell count of 1333 cells/mm³ (97% PMNs), red blood cell count of 102 cells/mm³, protein concentration of 117mg/dl, and glucose concentration of 84 mg/dl (simultaneous serum glucose was 252 mg/dl). Gram stain of CSF did not reveal organisms; latex agglutination tests for bacterial antigens (*H.influenzae*, *Neisseria*, *S.pneumoniae*) were nonreactive, as well as rapid varicella-zoster virus screen, rapid cytomegalovirus screen, and India ink preparation. Initial therapy of ticarcillin-clavulanate directed towards a presumed urinary source was changed to ceftriaxone and ampicillin. Blood cultures collected on admission subsequently grew group B streptococci. An echocardiogram demonstrated a vegetation involving the aortic valve leaflets. Blood cultures became sterile within 24 hours. The patient's neurologic status improved very slowly over weeks, with a course complicated by persistent right-sided hemi-neglect, expressive aphasia, and confusion. Follow-up MRI demonstrated bifrontal regions of signal abnormality consistent with cerebritis. Ultimately, the patient underwent aortic valve replacement for continued possible microemboli contributing to the cerebritis and prolonged neurologic recovery. Subsequently the patient experienced more rapid recovery of function, and after inpatient rehabilitation was discharged to home fully independent in caring for himself. He was treated with two weeks of gentamicin and ceftriaxone, and a total of six weeks of ampicillin.

DISCUSSION

This case illustrates many of the salient features of group B streptococcal infections in older adults. Group B streptococci are prevalent asymptomatic colonizers of the genitourinary tract, as well as the gastrointestinal tract and nasopharynx. The genitourinary tract of 5-20% of women is colonized²

and almost 50% of spouses of colonized women grow group B streptococci from urethral or urine cultures.³ In the setting of certain predisposing conditions, however, this organism can cause invasive infection. The incidence of serious group B streptococcal infections in adults increases with advancing age. Diabetes and malignancy are significant risk factors, with risk increased 10.5-fold and 16.4-fold respectively.¹ Renal failure, corticosteroid use, collagen-vascular disease, alcoholism, cirrhosis, radiation therapy within the previous year, and chronic prostatitis are additional risk factors.^{1,2,3} The age range for serious group B streptococcal infections in the older individual is 55-70 years.^{2,4,5}

Our patient had several strong risk factors for GBS (group B streptococci) infection, namely diabetes mellitus, prostate cancer, and recent radiation therapy. The abnormal platelet count and new renal insufficiency, in conjunction with the patient's fever, confusion, and somnolence, initially suggested thrombotic thrombocytopenic purpura as a possible diagnosis. As there were no microangiopathic changes on his peripheral blood smear, however, these hematologic abnormalities were attributed to overwhelming sepsis with diminished bone marrow response possibly secondary to the recent pelvic irradiation. We postulated that the patient became bacteremic with GBS from a genitourinary source, considering his history of prostate cancer and pelvic irradiation. This may have resulted in endocarditis, and then subsequently meningitis, although the time sequence of this is difficult to establish. As cultures were not obtained from other body sites, though, the nasopharynx and gastrointestinal tract remain as possible sources of the patient's infection.

Group B streptococci cause acute and subacute endocarditis in virtually identical proportions. The mitral valve is more commonly involved than is the aortic valve.³ Endocarditis caused by group B streptococci can affect either native valves or valves with preexisting disease. The organism is usually sensitive to penicillin derivative antibiotics, with a recommended duration of treatment of four to six weeks.

Our patient's poor outcome, in respect to persistent neurologic deficits, is not unusual in view of the potential severity of group B streptococcal infections in older individuals. Literature review indicates that the mortality in the elderly can approach 70%.^{2,4,5} The incidence of these infections, although uncommon, is increasing, and

many of our elderly patients possess one or more risk factors for invasive infection with this organism. In conclusion, group B streptococci are increasingly prevalent and often unsuspected causes of severe infections in the elderly, resulting in overwhelming mortality.

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The Importance of Multiple Antibiotic Coverage for Hospitalized Patients When the Community Acquired Pneumonia is Legionnaire's Disease

Louise V. Krone, MD

Cost constraints and concerns about side effects have encouraged a trend towards single antibiotic treatment of community acquired pneumonias. Physicians must remain vigilant however, for unusual presentations of atypical pneumonias.

I present the case of a patient with a normal immune system who had a rapid progression of an atypical pneumonia, but recovered without complications because of the addition of further antibiotics.

CASE REPORT

A 44-year-old man presented to our Emergency Department with a 5-6 day history of fever, chills, cough productive of green sputum and left sided pleuritic chest pain. The patient also admitted to several days of diffuse abdominal pain, anorexia and diarrhea. He denied any other gastrointestinal complaints. The patient was on no medications. Past medical history was noncontributory. On social history the patient admitted to smoking two packs of cigarettes per day for 30 years and drinking a pint of wine per day. He denied any risk factors for HIV.

On physical examination the patient was in mild respiratory distress. His temperature was 105.3o F, respirations 28, pulse 88 and he had orthostatic changes in pulse only. His oxygen saturation was 98% on room air. Examination of chest revealed crackles in the right lower lobe and left upper lobe with corresponding dullness to percussion. Examination of the heart was within normal limits. Abdominal examination showed diffuse tenderness without rebound or guarding and bowel sounds were present. Rectal and neurological examination were normal. Laboratory tests were significant for a WBC of 6400 with 13 bandforms and 73 segmented neutrophils. The sodium was 117. Renal function was normal.

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Roentgenogram showed left upper lobe and right lower lobe infiltrates.

The patient was admitted and started on intravenous antibiotics including a third generation cephalosporin and erythromycin. He continued to spike high fevers and had worsening respiratory status over the first 24 hours. The sputum gram stain, cultures and blood cultures were all negative. He did have a positive urine antigen for *L. pneumophila*. The patient's respiratory status began improving after 48 hours, and after several days of therapy, the patient became afebrile and was stable for discharge.

DISCUSSION

Legionnaire's disease accounts for 5-16% of all community acquired pneumonia and 14-37% of severe community acquired pneumonia.^{1,2,3} Legionnaire's disease is rarely seen in immunocompetent children, but is seen with ventilator use.⁴ Outpatient oral therapy or single agent IV therapy for Community Acquired Pneumonia often offer inadequate coverage for Legionella.

Although sporadic episodes of Legionnaire's disease account for more infections, epidemic outbreaks have been better studied. Strauss and others studied sporadic cases of Legionnaire's disease and found several risk factors.⁵ These include having a nonmunicipal water supply, recent residential plumbing repairs and smoking. Another study showed Legionnaire's disease to be more common during summer months and in northern states.⁶

Bentham and Broadbent found that intermittent use of cooling towers can cause autumn outbreaks.⁷ Other outbreaks have been associated with grocery mist machines, decorative fountains and more commonly contamination of potable water.^{8,9} Mermal and others found three different outbreaks of legionella infection during construction at their institution.¹⁰ Other studies have shown epidemics linked to contamination of hot water systems in large buildings and complexes.¹¹

Legionnaire's disease is often difficult to diagnose, as there are no diagnostic radiologic features.¹² Legionella is a fastidious organism, so special media and technique must be used to culture it from the sputum or blood. Immunofluorescent microscopy of sputum, lung or pleural fluid is only 25-75% sensitive. DNA probe is genus specific and not practical in most labs. Serum antibody is not very useful as it may take two to three months for seroconversion. The most

practical and sensitive test is urine antigen ELISA, which is 90% sensitive, but specific for serogroup 1 *L. pneumophila*.¹³ The clinician therefore must specifically request the appropriate test for Legionnaire's disease.

Initial diagnosis is important as even aggressively treated Legionnaire's disease carries a 13-27% mortality.³ Advanced age, male sex, renal disease, malignancy and immunosuppression are all risk factors for increased mortality.⁶

Our cases as well as the literature demonstrates Legionnaire's Disease to be a significant cause of severe community acquired pneumonia. Physicians are advised to test for and aggressively treat Legionnaire's disease even in immunocompetent patients. Severe community acquired pneumonia is best treated with multiple antibiotic therapy including a macrolide until an organism is isolated.

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Epidemiology of Human Blastomycosis in Vilas County, Wisconsin II: 1991-1996

by Dennis J. Baumgardner, MD and Kathy Brockman, BSN

ABSTRACT

Purpose

A previous report identified Vilas County, Wisconsin, as an area highly endemic for blastomycosis based on a case series 1979-90. This study was done to compare the epidemiologic features of persons with this disease over the following six years.

Methods

Compilation of data from the 47 mandatory physician/laboratory case reports of blastomycosis, disease onset 1991-96, received at the Vilas County Health Department; case mapping by site visit; and statistical comparison to the previous series.

Results

The estimated mean annual incidence rate for Vilas County during 1991-96, 40/100,000, remains unchanged from 1984-90. Cases were again disproportionately represented in the southeast corner of the county, and 36/46 lived within 1/4 mile of water. There was a trend toward a higher proportion of female cases in this study (27/47) compared to the prior report (28/73; $P=0.06$); the mean age, 47 years, did not differ. Among 32 patients whose activities were recorded, a minority engaged in hunting (4), fishing (4) and gardening (12) prior to disease onset; but 19/32 recalled excavation prior to exposure compared to 17/60 in 1979-90 ($P<0.01$). Among cases with a pulmonary presentation, winter onset cases (3/40) were significantly fewer than in 1979-90 (19/55). However, over the entire 18 years there was no disproportionately represented season.

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Conclusions

In highly endemic Vilas County, the mean annual incidence of human blastomycosis appears stable over the past 13 years. A combined case series of 18 years reveals no predilection by gender or season of onset.

INTRODUCTION

Blastomycosis^{1,2} is a systemic and cutaneous fungal infection of humans, dogs and other animals in which pulmonary disease, the most common manifestation, ranges from mild or asymptomatic to severe and fulminating, including the adult respiratory distress syndrome.³

Previously we have described the epidemiologic features of 73 cases of human blastomycosis from the Vilas County, Wisconsin area, 1979-1990, with incidence figures derived for that county for the period 1984 (the beginning of mandatory disease reporting for blastomycosis) through 1990.⁴ This study revealed a geographic clustering of cases in the Eagle River area where the estimated annual incidence of blastomycosis was 100/100,000 compared to 40/40,000 for all of Vilas County. Both of these rates were significantly higher than that of any other geographical area previously reported. This study⁴ also revealed a predominance of pulmonary disease, a male:female ratio of 1:6, a December-April predominance of onset, and 82% of cases located within 1/4 mile of a waterway.

The purpose of the present investigation was to compare the findings of this previous report with the epidemiologic features of human blastomycosis in the same area during the subsequent six years.

METHODS

This report is based on all cases of laboratory confirmed blastomycosis, based on mandatory physician and laboratory reporting, received at the Vilas County Health Department with disease onset between 1 January 1991 and 31 December 1996. In our prior investigation,⁴ these reports

captured 96% of all Vilas County resident cases identified by a combination of health department reports, and case finding through the three local hospitals and patient interviews, since the onset of mandatory reports in 1984. Following receipt of the mandatory reports, all available cases were contacted for a telephone interview by the health department nurse, using a standard questionnaire, as in our prior report.⁴ Location of cases and proximity to waterways were verified by homesite visits by one author (DJB).

Mean annual incidence rates for residents of Vilas County, and the Eagle River area (Cloverland, Lincoln and Washington Townships, and the City of Eagle River) were calculated using 1990 census data.

Data from this and the prior investigation⁴ were compared using a t-test for mean ages; and chi-square test with Yates' correction or Fisher's exact test for categorical data using Epi-Info software. P values <.05 were considered significant.

RESULTS

Forty-seven cases of laboratory confirmed blastomycosis, onset 1991-96, were received at the Vilas County Health Department. Two cases were residents of Oneida County and were excluded from annual incidence calculations. Forty-two of the 47 cases presented with pulmonary disease (at least two of the cases had one or more extra pulmonary sites); 4/47 had cutaneous and 1/47 ocular blastomycosis. The mean age of these patients (46.8 years) (range 11-86) did not differ from the mean age of cases 1979-90,⁴ 42.4 years ($P=0.3$). The distribution of ages, by decade, for the combined cases 1979-96 is shown in Figure 1. Of the present cases, 27/47 were female compared to 28/73 female in 1979-90 ($P=0.06$). For both time periods combined, 55/120 (46%) were female, an insignificant trend ($P=0.6$).

Figure 2 illustrates the month of symptom onset for those with a pulmonary presentation 1991-96. Winter cases (January-March) were underrepresented during this time period, 3/40 compared to 19/55 for 1979-90 (data on file), a significant difference ($P=0.004$). When cases from both time periods are combined, there is no significant seasonal predilection (Figure 3).

The estimated annual incidence of blastomycosis for residents of Vilas County (40/100,000) and the Eagle River area (100/100,000) for the period 1991-96 is unchanged from the period 1984-90. Figure 4 illustrates the geographic location of the 47 cases in the current study. The

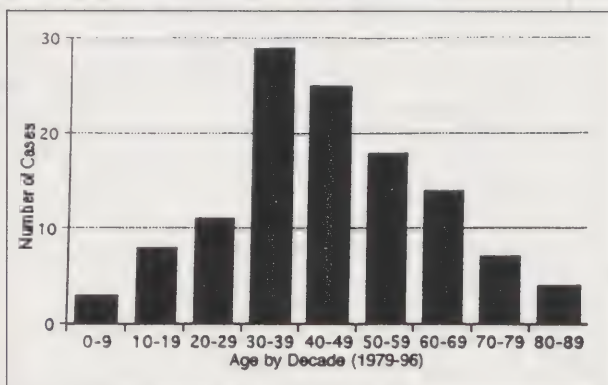


Figure 1.

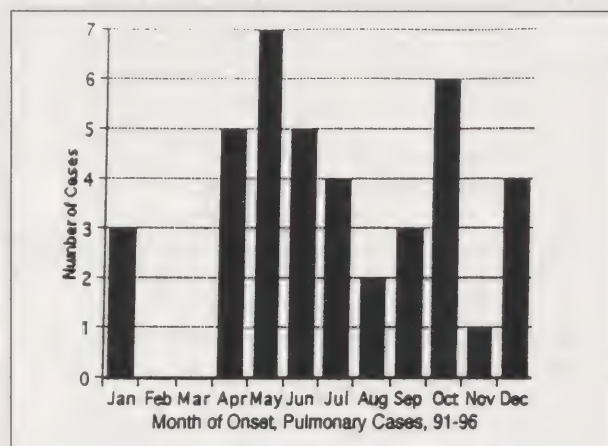


Figure 2.

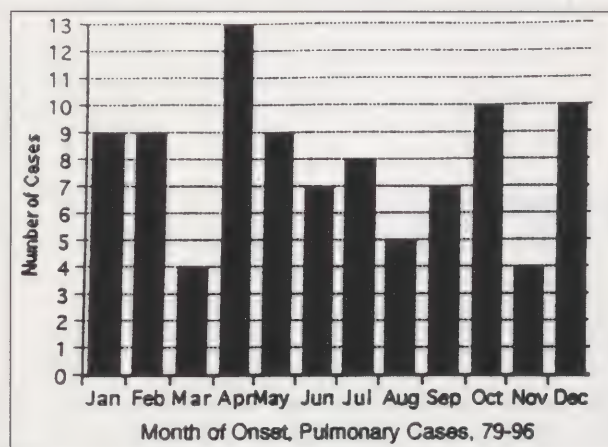


Figure 3.

Eagle River area accounted for 76% of county cases but only 32% of the population.

Table 1 represents the exposure history of blastomycosis patients during the two time periods, and their combination. Overall, 80% of combined cases resided within 1/4 mile of a waterway, but a minority recalled fishing, hunting, gardening or excavation in the six months prior to symptom onset.

Table 1. Exposure History of Blastomycosis Patients

Epidemiologic Feature	No. of Patients 1979 - 1990	No. of Patients 1991 - 1996	P-Value*	No. of Patients 1979 - 1996
Within 1/4 mile of waterway	57/70	36/46	0.9	93/116 (80%)
Fishing	30/60	4/32	<0.01	34/92 (37%)
Hunting	19/58	4/32	0.06	23/90 (26%)
Gardening	15/45	12/32	0.9	27/77 (35%)
Excavation	17/60	19/32	<0.01	36/92 (39%)

* chi-square test with Yates' correction

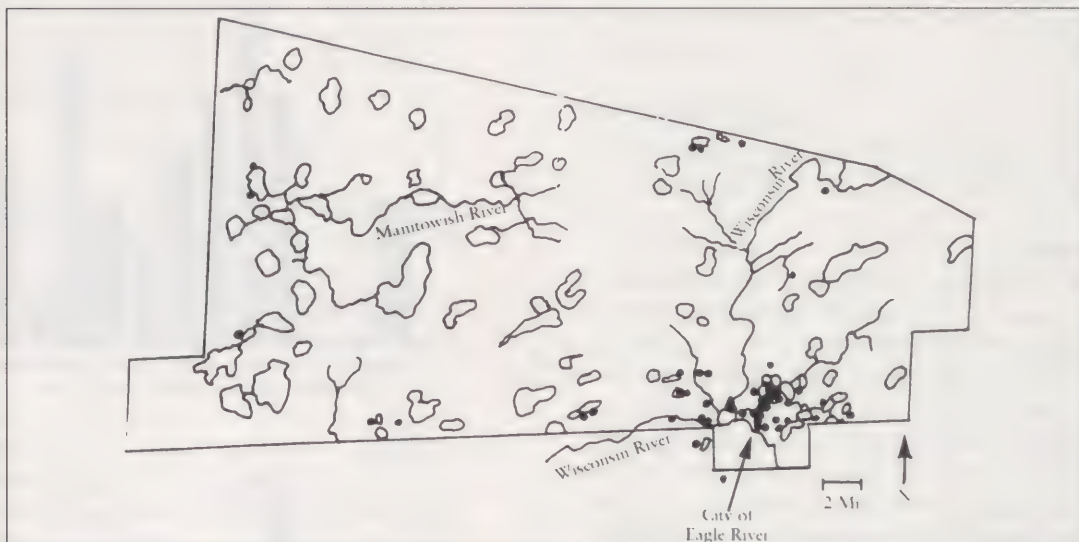


Figure 3.

DISCUSSION

Vilas County was among four counties with the highest reported incidence of blastomycosis based on mandatory case reporting to the Wisconsin Division of Health for the years 1985-94.⁵ This county has also been the site of two of the largest reported outbreaks of blastomycosis, one related to a beaver pond west of Eagle River in 1984,⁶ another to lakeshore excavation in the same vicinity in 1988.⁷ Our prior case series⁴ determined annual incidence rates for the county (40/100,000) and the Eagle River area (101/100,000) for years 1984-90, rates which have remained remarkably consistent over the subsequent six years detailed in this report. These rates are substantially higher than those of Washington Parish, Louisiana (6.8/100,000), the highest endemic area previously reported from North America.⁸ Overall national statistics regarding blastomycosis are not available for comparison as

the disease is not subject to mandatory case reporting in most states.

Both the prior⁴ and the present report indicate a concentration of cases near the confluence of the Eagle and Wisconsin Rivers, west of Eagle River, and the Eagle River Chain of Lakes. This area, then, persistently affords suitable ecologic niches for *Blastomyces dermatitidis*, the etiologic agent. The precise micro-environmental conditions of these niches, however, are undefined, but presumably include abundant organic material and moisture, location in or near mildly acidic, frequently sandy soil, and perhaps bird or animal excrements.⁹⁻¹¹ The predominant soil type in Vilas County is indeed sandy loam over acidic glacial drift or outwash,¹² contrasted with the silt loam surface over dolomite or sandstone bedrock of southwestern Wisconsin, an area of significantly lower blastomycosis incidence rates.^{5,13}

A recent study of a Vilas County veterinary practice revealed that the epidemiology of blastomycosis in dogs parallels that of humans in the region, and that close proximity to waterways and excavation were significant risk factors for disease acquisition using both a random control group and a control group of outdoor exposed dogs.¹⁴ In the present report, 78% of cases lived within 1/4 mile of a waterway and a majority recalled excavation prior to symptom onset. Specific outdoor activities (hunting, fishing, gardening) prior to exposure were recalled by even fewer patients than in our prior study, further supporting our previous suggestion that place of residence in a highly endemic area is more important for exposure to *B. dermatitidis* than the degree or type of outdoor activity.⁴

For the combined 1979-96 cases, no seasonality or predominant month of onset of pulmonary symptoms was found, a finding consistent with that of Proctor for Wisconsin cases 1985-94, based on onset of pulmonary or non-pulmonary symptoms.⁵

While statewide figures indicate a male:female ratio of 1.4:1 for blastomycosis,⁵ and others have documented a male predominance,¹⁵ combined 1979-96 data from our report revealed an insignificant male predominance in this highly endemic region, similar to our findings in dogs.¹⁴

In summary, Vilas County remains highly endemic for blastomycosis, with the mean annual incidence rate for humans stable over the past 13 years, and cases predominantly in close proximity to waterways. Combining cases over the past 18 years reveals no predilection by gender or season of onset.

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Beware of the Fungus

Basil Varkey, MD, FCCP

While we enjoy the tranquillity of our northern lakes and forests and the many outdoor activities that these provide, we are also at risk to acquire an infection by *Blastomyces dermatitidis*. In this issue of the WMJ (page 44), Baumgardner and Brockman update information on the epidemiology of blastomycosis in Vilas County. Vilas County remains a highly endemic area for the fungus with an annual incidence rate of 40 per 100,000 population that is the highest reported from any county in the USA. In comparison the annual incidence is less than 1 per 100,000 in states with the highest rates of blastomycosis (Mississippi, Kentucky, Arkansas, Wisconsin) in the country.^{1,2} A reassuring note is that the incidence rates in Vilas County from 1991 to 1996 have not risen from the preceding years. The authors found no significant predilection for blastomycosis based on the age, sex, and habits/activities of the persons or in any particular season. Approximately 10% of cases were in both ends of the age spectrum and unlike some previously reported case series^{3,4} there was no male preponderance. The lack of a seasonal predilection may in part be due to the wide range of incubation period, 21 to 106 days (median 45), of this fungal infection.⁵ A helpful point for the clinician is that inquiry of the area of residence or visits of the patient is more important than any specific habits or activities.

PRESENTATION

This update provides an opportunity to highlight clinical and diagnostic aspects of blastomycosis that are of particular importance to clinicians. About one half of those infected with the fungus are asymptomatic.⁵ Symptomatic patients usually have pulmonary disease and its manifestations

vary in severity but usually conform to one of four patterns: 1) a self-limited flu like illness with fever, headache, myalgia, and non-productive cough that may go undiagnosed except in a setting of a known outbreak; 2) an acute bacterial pneumonia-like illness with fever, productive cough and pleuritic chest pain; 3) a chronic illness with weight loss, productive cough, and low-grade fever that simulates tuberculosis or lung carcinoma; and 4) a fulminant disease that manifests as an adult respiratory distress syndrome (ARDS) with fever, tachypnea, hypoxemia and diffuse infiltrates. The last type of presentation, although a relative rarity in immunocompetent persons, requires speedy diagnosis and treatment as it is rapidly progressive and often fatal.⁶ Blastomycosis has also been recognized in immunocompromised patients (e.g., acquired immunodeficiency syndrome, hematologic malignancies, immunosuppressive therapy) with a great propensity to disseminate to multiple organs.⁷

Although lung is the primary site of blastomycosis the infection may disseminate to other organs. In immunocompetent persons chronicity of the infection is the major factor favoring extrapulmonary dissemination.⁸ Pulmonary disease alone accounted for 77% of all blastomycosis in a highly endemic area where presumably the diagnosis was made early in the course.⁹ The extrapulmonary organs likely to be affected, in their order of frequency are skin, bone, prostate and other genitourinary organs, brain and meninges. However, virtually any organ can be affected by blastomycosis. Rarely, the extrapulmonary site may be the presenting and sole manifestation of the disease and this poses a serious diagnostic challenge to the clinician. The variety of presentations, especially in sites where other diseases are commonly seen, may lead to misdiagnosis and delayed diagnosis. Examples of these that I have encountered over the years, with the initial diagnosis in parentheses, include: skin lesions (pyoderma gangrenosum), mandible (actinomycosis), long bone and vertebral lesions (metastatic neoplasm), cerebral and cerebellar lesions (neoplasm) and laryngeal lesion (carcinoma).¹⁰ The literature is replete with other examples of rare

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presentations such as blastomycosis of the breast,¹¹ ocular disease,¹² otitis media,¹³ and tracheal blastomycosis.¹⁴

DIAGNOSIS

Identification of *B. dermatitidis* by culture confirms the diagnosis but takes several weeks. Exoantigen testing have reduced the time to one to three weeks and advances such as DNA probe are likely to further reduce the time needed for diagnosis.^{15,16} However, the characteristic appearance of the yeast form of the fungus on microscopic examination permits the clinician to start treatment without delay. A simple, fast and inexpensive technique is to examine freshly expectorated sputum or aspirated pus from a lesion as follows: A sample is placed on a slide and a drop or two of 10% potassium hydroxide (KOH) is added and mixed with the sample and covered with a coverslip. After allowing time for KOH digestion (around 20 minutes) the slide is examined under microscope. Yeasts, 8 to 20 μ m in size, with single broad-based buds, double refractile walls and multiple nuclei are very characteristic of *B. dermatitidis*. In patients with a pneumonic presentation the diagnostic yield of sputum microscopy is more than 75%.⁸ This simple test coupled with good clinical reasoning was instrumental in diagnosing blastomycosis in a child, with nonresolving pneumonia and a history of attending a camp in Eagle River, that led to the discovery of the largest outbreak of blastomycosis.⁵ When sputum or pus is unavailable tissue biopsy from an affected organ is necessary for diagnosis. Periodic Acid Schiff (PAS) and silver stains are good in identifying the fungus in the biopsied material.

Skin test and serologic tests are handicapped as diagnostic tools because of the lack of reliable and purified antigens. Skin tests antigen is not available commercially. Currently available serologic tests — complement fixation, immunodiffusion and enzyme immunoassay (EIA) — using A antigen are not sensitive enough to exclude the diagnosis based on a negative test. A positive serologic test in the appropriate clinical setting is suggestive but not diagnostic of blastomycosis. The reliability of serologic tests will improve with better and purified antigens such as Wisconsin antigen (WI-a), a 120 kd yeast cell surface protein,¹⁷ but these are not available yet for widespread clinical use.

Blastomycosis is with us and will continue to be with us in Wisconsin. The central message of this brief communication to clinicians: Be fully aware of the varied clinical presentations of our endemic fungus. Beware of the fungus!

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Sporadic Cases of Hemorrhagic Colitis Associated with *Escherichia coli* O157:H7 in Rural Wisconsin *

Qiang Cai, MD, PhD, and John Olson, MD

ABSTRACT

The epidemiology and clinical aspects of *Escherichia coli* O157:H7 (*E. coli* O157:H7) infections in rural Wisconsin have rarely been reported. In the last six years, 66 cases of *E. coli* O157:H7 infection were encountered at our institution. Bloody diarrhea was the universal presentation and all cases represented apparent sporadic infection as institutional or community-wide outbreaks were not found in our study. The mean age was 31 (range 7 months to 86 years), 25% less than 10 years old and 60% were female. Most cases were seen in summer and early autumn (88%). Two patients (3%) developed hemolytic-uremic syndrome. Case-fatality rate in this study was 1.5%. Antibiotic treatment and hospitalization did not change the course and outcome of the infection. Routine screening of *E. coli* O157:H7 during winter time (December and January) may not be necessary in our rural area. The understanding gained from our study might foster better infection control.

INTRODUCTION

The *Escherichia coli* serotype O157:H7 (*E. coli* O157:H7) was first recognized as a cause for hemorrhagic colitis in 1982 during an investigation of two outbreaks of diarrhea in Oregon and Michigan.¹ Hemorrhagic colitis is a syndrome characterized by bloody diarrhea and abdominal cramps with little or no fever. Complications include hemolytic-uremic syndrome (HUS) and thrombotic thrombocytopenic purpura (TTP), conditions marked by thrombocytopenia, hemolytic anemia, acute renal failure, and even death. Subsequent studies have shown that this infection could present as symptom-free, non-bloody diarrhea, bloody diarrhea, HUS or TTP.²⁻⁶

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Most of the reported studies involved outbreaks of this infection, while a few concentrated on the sporadic cases. The only report of *E. coli* O157:H7 infection in Wisconsin reported on an outbreak in 1988.⁷ We are not aware of any report studying sporadic cases of *E. coli* O157:H7 infection in Wisconsin; our aim is to review some clinical and epidemiological features of sporadic cases of *E. coli* O157:H7 hemorrhagic colitis in our rural area, and thus seek ways to improve the management of the infection.

METHODS

Since May 1991, stool samples from patients with bloody diarrhea have been routinely cultured at our institution for *E. coli* O157:H7 as well as standard enteric pathogens, *Salmonella*, *Shigella*, and *Campylobacter*. Unless requested by the physician, speciation of *Campylobacter* [*Campylobacter coli*, *Campylobacter inridis*, and *Campylobacter jejuni*] and/or culturing for *Yersinia* and *Clostridium difficile* were not performed. Stool samples yielding *E. coli* O157:H7 were further tested by RIM *E. coli* O157:H7 Latex test (remel, Lenexa, KS). Some of the stool samples were randomly sent to State Laboratory of Hygiene in Madison for confirmation.

Most stool samples were submitted from our clinic and St. Joseph's Hospital at Marshfield. Some stool samples were received from our service area even if the patients were not seen in Marshfield. The primary service area of our institution are the sixteen counties of North Central Wisconsin (Figure 1). We retrospectively reviewed all the *E. coli* O157:H7 infected cases so identified and our findings are detailed below. As a comparison, we studied cases in which *Salmonella*, *Shigella*, and *Campylobacter* were isolated in the same time. We also contacted the Wisconsin Department of Health in order to recognize any outbreak *E. coli* O157:H7 infection in this study period.

RESULTS

Among the nearly 21,000 stool samples that were cultured between May 1991 through July 1997,

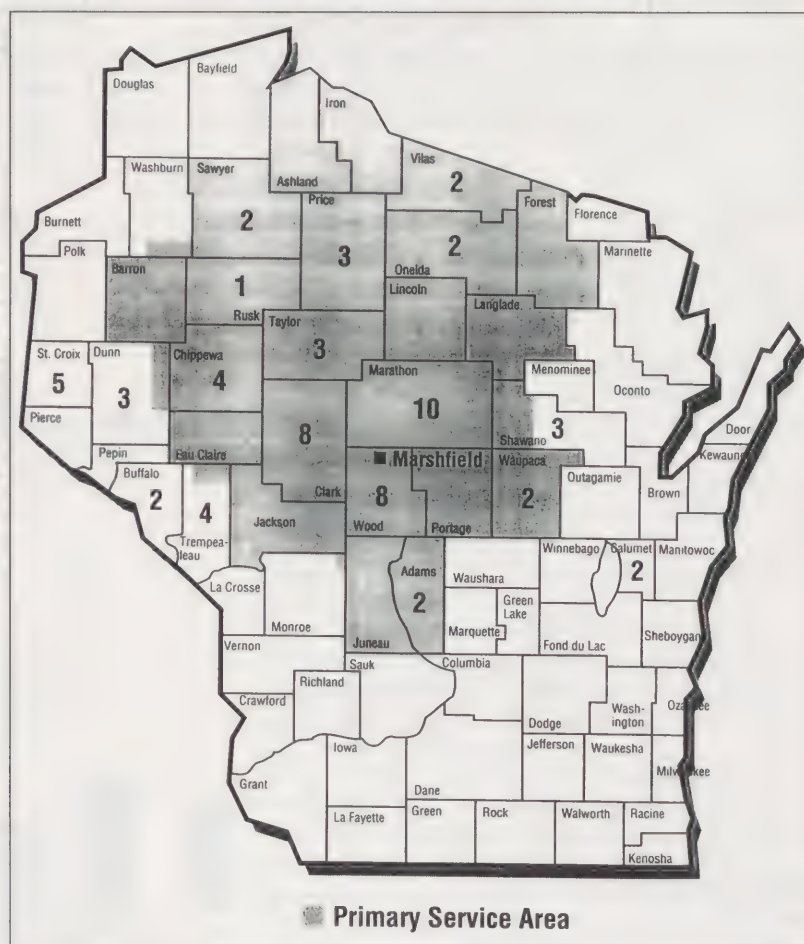


Figure 1. Geography of the primary service area and the patients' location. The colored area indicates the primary service area of Marshfield Clinic and St. Joseph's Hospital at Marshfield. The number indicates the counties of residence of the 66 patients with *E. coli*.

66 samples (0.31%) yielded *E. coli* O157:H7; *Campylobacter* was isolated in 1,027 (4.98%), *Salmonella* in 403 (1.91%); *Shigella* in 98 (0.46%) *Yersinia* in 16 (0.07%). All twelve of the 66 positive *E. coli* samples that were sent to the State Laboratory of Hygiene for confirmation were confirmed as *E. coli* 157:H7. All the *E. coli* O157:H7 positive samples came from sporadic cases, spread throughout the North Central Wisconsin rural area (Figure 1). All but two cases from a single family were isolated infections. We identified no *E. coli* O157:H7 infection outbreak; this was corroborated by the State of Wisconsin Department of Health.

Infections were more commonly identified in summer and early fall. The peak incidence was in 1995, accounting for nearly one-third of all cases. The number of identified cases in other years was nearly constant (Figure 2). Our study did not indicate that the infection rate is increasing in our area.

The mean age for these 66 patients was 31 (range 7 months to 86 years). Sixty percent of the patients were women and 40% percent were men. All 66 patients reported bloody diarrhea, thus making their clinical presentation compatible

with acute hemorrhagic colitis (Table 1).

Twenty of these 66 patients (30.3%) received documented antibiotic therapy. Nine patients were hospitalized, all due to HUS or based on physician preference (Table 1). There was one death, but all others fully recovered. Thus, for the most part, the infection seemed to be self-limited and perhaps unaffected by antibiotics therapy and inpatient care.

Two infants (one year old), developed HUS. One, a boy, died after approximately ten hospital days while the other, a girl, completely recovered following hospitalization and treatment. Therefore, the morbidity rate for HUS in this study was 3.0% and case-fatality rate was 1.5%.

Co-infection with *Clostridium difficile* was noted in two patients, neither of whom had evidence of preceding antibiotic therapy. Another patient had co-infection with *Campylobacter*, but specific speciations was not done.

DISCUSSION

The estimated annual incidence of *E. coli* O157:H7 in the rural population served by our institution was about 0.17 per 100,000. Our report

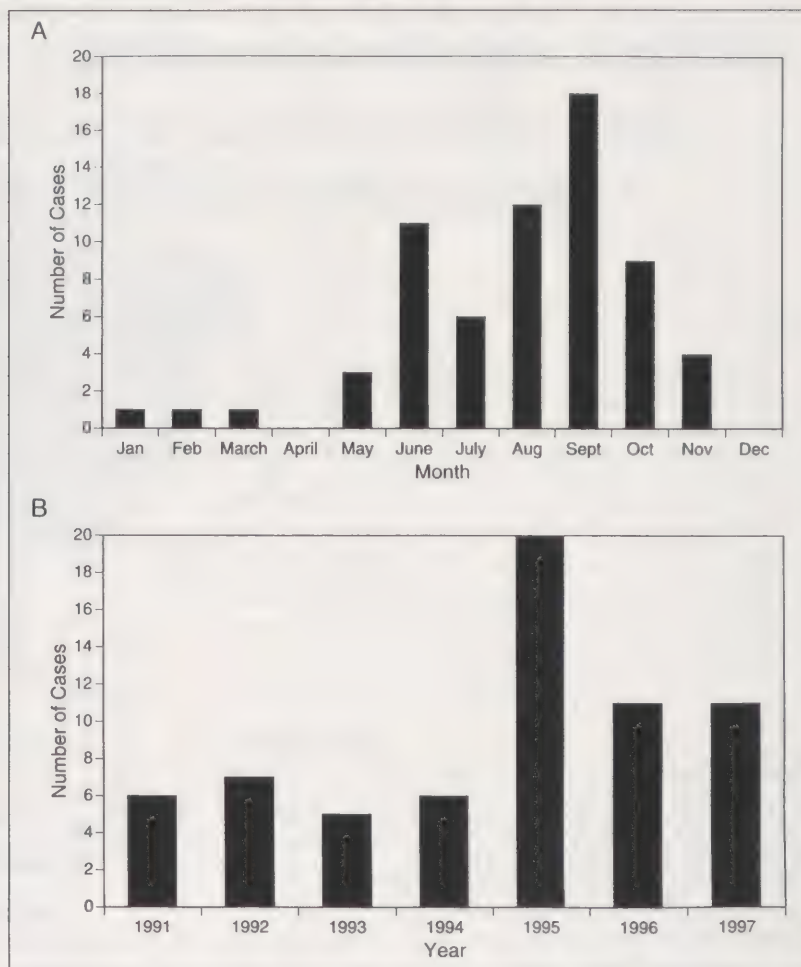


Figure 2. *E. coli* O157:H7 infection in the last six years.

A. number of cases in each month;
B. number of cases in each year.

being an institution-based, retrospective study, the true incidence of the *E. coli* O157:H7 infection cannot be calculated with precision. Although our study shows a lower incidence of this infection than a similar study from Washington State serving an urban population with a reported annual incidence of 2.1 cases per 100,000,⁸ further population-based studies are necessary before one can conclude that rural areas have a lower incidence of *E. coli* O157:H7 infection.

There were two patients from one family, although the majority of the patients bore no relationship to each other. The first was a 27-year-old man with bloody diarrhea and stools positive for *E. coli* O157:H7. About one week later, his 7-month-old daughter also developed bloody diarrhea due to *E. coli* O157:H7, suggesting the possibility of person to person transmission of this infection. In our six-year review, no outbreaks of infection occurred, although two outbreaks of *E. coli* O157:H7 occurred in this study period and another was reported in 1988.⁷ The former, small outbreaks not included in this study, occurred in

northern Wisconsin and involved fewer than twenty persons. Public facilities, such as restaurants, nursing homes, or day care centers may be the primary sources for outbreak infection; improvements in personal hygiene and food preparation might have helped avert outbreaks in our area.

Infections were rarely identified during the winter months in this study. More than 80% of the infections occurred in the summer and fall, a finding noted in earlier studies as well.⁸⁻¹¹ Therefore, bloody diarrhea in North Central Wisconsin in winter months (especially during December and January) is rarely caused by *E. coli* O157:H7 infection. Consequently, routine examination of stool for *E. coli* O157:H7 may not be necessary during the winter months.

Most of the patients were young to middle-aged, although all age groups from the nearly new born to the elderly were represented. The reason for this age predilection is unknown, but the observation is consistent with that in prior reports.⁷⁻¹⁰ It could relate to the eating habits of

Parameters	Patients	
Sex	n	Percent
Female	40	~ 60
Male	26	~ 40
Age		
≤ 3 years	12	~ 18%
4-10 years	10	~ 15%
11-20 years	6	~ 9%
20-65 years	28	~ 42%
> 65 years	10	~ 15%
Clinical bloody diarrhea	66	100%
Complications		
HUS	2	3.0%
Death	1	1.5%

Table 1. Characteristics of the 66 cases of *E. coli* O157:H7 infection

different age groups. Young and middle-aged people may more likely to eat cold foods than other age groups. On the contrary, the elderly and the very young may eat more carefully than the young and middle-aged group. Women were slightly more of risk than men in this study, though the infection was believed to have no sexual predominance.¹⁰ However, one study did indicate the possibility of a female predominance in hemolytic uremic syndrome.¹² We feel that these aspects of the infection require further investigation.

The 3% complication rate for HUS in this study was within the previously reported range of 2% to 7%.¹³ The HUS cases in our study involved two one-year-old children, further suggesting that HUS predominately afflicts the very young. Both the case-fatality rate and the estimated annual incidence of *E. coli* O157:H7 infection in our study were lower than in other reports.¹¹ We are unaware of the reason(s) for these differences.

Antibiotic therapy and inpatient care did not modify the course or outcome of the cases reviewed. Except for one death due to HUS, all patients recovered; most cases required little more than supportive care. Therefore, antibiotics and hospitalization are the exception, not the rule for management of the *E. coli* O157:H7 infection. Finally, three cases in this study had co-infection of *E. coli* O157:H7 with other pathogens, one with *Campylobacter* and two with *Clostridium difficile*. The co-infection of *E. coli* O157:H7 with other enteric pathogens has rarely been reported. For these co-infected patients and the patient with HUS or TTP, antibiotic therapy or/and inpatient care may be indicated.

ACKNOWLEDGMENTS

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The Wisconsin Primary Care Organizations Consortium: A Forum for the Primary Care Medical Specialties

by John W. Beasley, MD; John M. Pascoe, MD; and Daniel L. Johnson, MD

KEYWORDS

Societies, Medical; primary care; family practice; internal medicine; pediatrics

ABSTRACT

The Wisconsin Primary Care Organizations Consortium (WI-PCOC) is composed of the leadership of Wisconsin's primary care medical specialties whose four professional societies have a combined membership of about 3,900 physicians. Since 1992, WI-PCOC has explored the priorities and issues of importance of each organization, and has reviewed organizational resources to synchronize agendas and to avoid conflict. WI-PCOC articulates policy supported by its member societies with a common voice; it does not set policy.

WI-PCOC has worked with legislators, medical school deans, other specialty societies and other groups interested in primary care service and education. WI-PCOC member organizations aspire to work together to improve the level of health of Wisconsin citizens and their communities.

INTRODUCTION

Family medicine, general internal medicine, and general pediatrics are the medical specialties that have primary medical care as their focus. Despite differences in the historical roots of their respective professional societies, they have much in common including their viewpoints regarding medical practice, patient advocacy, medical education, research, public policy, and concerns regarding financial matters and corporate policies.

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In the late 1980s, the growing awareness of these common viewpoints and the need to speak with a united voice led the leadership to come together in an ongoing dialogue when officers of the societies began to attend each other's annual meetings and board meetings. In 1992, the organizations created the Wisconsin Primary Care Organizations Consortium (WI-PCOC) to maintain this ongoing dialogue. Although historically the relationships among WI-PCOC member organizations have been distant, and at times even in conflict, WI-PCOC has successfully facilitated communication and understanding.

WI-PCOC is comprised of representatives drawn from the leadership of the three medical specialties with each of the four specialty societies* being represented by two to three members who are named by that society. Typically, the president of the society is a representative. The constituent groups comprising WI-PCOC represent about 3,900 internists, pediatricians and family physicians in Wisconsin. The group meets once every three to four months with communication and support services provided by the UW Department of Family Medicine. The group often asks an outside guest to attend to inform the member societies on a specific issue.

In WI-PCOC, each constituent specialty society affirms that there is much to be gained through effective communication, finding common ground and joint effort. There is, however, no interest on the part of any of the members in a merger into any sort of a "generic" primary care specialty, although this has been suggested by at least one author¹. Each specialty group takes pride in its historic roots, its individual philosophy, and its particular strengths.

WI-PCOC articulates policy supported by all four of its member societies with one common voice. While it does not set policy for its member organizations, their representatives carry information, questions, and policy suggestions back to their respective boards.

GOALS OF WI-PCOC

Since it is primarily an informal, information-sharing group, WI-PCOC has only recently developed a formal statement of purpose and goals. WI-PCOC's purpose statement and goals are consonant with the published recommendations of the Institute of Medicine's Committee on the Future of Primary Care². WI-PCOC's statement of purpose is:

We are physicians working to advance primary care for the health and well-being of Wisconsin patients and their communities. This purpose has its expression in three goals:

Increase communication, coordination and education among the primary care physician specialty groups.

Enable the primary care specialty groups to speak with a single voice regarding important health care issues including quality in health care, community health and other related issues.

Enhance the quality of primary health care in Wisconsin communities.

ACTIVITIES OF WI-PCOC

WI-PCOC has taken a number of specific actions designed to meet the practice and educational goals of the three disciplines. These include:

- Met with the deans of both medical schools to encourage positive cultural change towards primary care in the schools. Much remains to be done to improve the climate for primary care in academia³.
- Supported the UW-Madison Medical School Generalist Partnership Program grant application. Funding was received from the Interdisciplinary Generalist Curriculum Project of HRSA/BHP⁴.
- Hosted a meeting between representatives of the Wisconsin State Legislature and the deans' offices of the two medical schools in response to a legislative directive that both schools provide a joint plan for increasing the number of graduates selecting primary care careers.
- Met with the directors of the Wisconsin Area Health Education Center (AHEC) to assure that

group of our collective support and to help the societies understand the AHEC's goals and objectives.

- Met with representatives of the Wisconsin Psychiatric Association to discuss strategies to improve the interaction between primary care physicians and psychiatrists.
- Met with the Minority Affairs Officers from the two medical schools to explore ways in which the members can facilitate the recruitment of under represented minorities into medical school and into primary care specialties.
- Met with representatives of the Wisconsin Association for Biological Research and Education (WABRE) to promote funding for primary care and other biomedical research.
- Met with a governmental affairs expert to begin to design a legislative strategy to protect primary care interests and maintain quality care for patients in the emerging corporate medical environment.

WI-PCOC will continue to seek for ways in which Family Practice, General Internal Medicine and General Pediatrics can work cooperatively to advance primary medical care and primary care education and research for Wisconsin.

*WI-PCOC membership consists of the leadership and designated representatives of following societies:

The Wisconsin Academy of Family Physicians
The Wisconsin Chapter, American Academy of Pediatrics
The Wisconsin Chapter of the American College of Physicians
The Wisconsin Chapter of the American Society of Internal Medicine

ADDENDUM

Since this paper was accepted for publication, the Wisconsin Chapter of the American College of Physicians and the Wisconsin Chapter of the American Society of Internal Medicine have merged.

ACKNOWLEDGEMENTS

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COMMENTARY ON PCOC ON THE NATIONAL SCENE

THE NATIONAL PCOC ORGANIZATION

In June, 1989, representatives from the American Academy of Family Physicians, the American College of Physicians, and the American Academy of Pediatrics, The Society of Teachers of Family Medicine, the American Board of Family Practice, the Society for General Internal medicine and the American Association of Medical Colleges met to "discuss the current status of medical student interest in primary care careers and to devise strategies to enhance the number of students who choose primary care...."

In 1990, the group chose the name "Primary Care Organizations Consortium (PCOC)" and met to address the marked decline in interest among medical students in primary care residency training. PCOC has been previously described⁵. One mark of PCOC's success has been the introduction of the "Interdisciplinary Generalist Curriculum Project" which enhances preclinical medical education⁴.

Three specific strategies are being developed by the national PCOC. These are:

Leadership: To create and support multidisciplinary approaches for the development of generalist faculty to meet the administrative, educational and research needs in primary care medicine.

Research: To define primary care research and identify strategies to increase local, regional and national support for its pursuit.

Curriculum: To define the relationship of multidisciplinary generalist curriculum to all levels of undergraduate and graduate training and develop strategies for its integration into that training.

While there is a strong multidisciplinary emphasis, an important common theme has remained constant: All parties agreed not to advocate for a generic primary care physician and they embrace the concept of healthy competition among the three disciplines for students' attention as they seek careers in primary care medicine. The national PCOC now includes a total of 19 organizations, some of which are governmental. By comparison, the WIPCOG is smaller and is specifically specialty society related. Although the overall goals of the two groups are similar and one author (Pascoe) serves as a member of both, the two groups have no formal relationship.

My Celebrity Consultation

by James M. Cerletty, MD

Some physicians are consulted by the rich and famous. Clinicians in my specialty of endocrinology occasionally are asked to attend the ills of celebrities. I'm certain that a number of my colleagues evaluated the Graves' disease of George and Barbara Bush. The thyroid problems of one of our Olympic athletes prompted the input of a number of consultants in my field. John Kennedy's Addison's disease certainly required the opinions of the hormone experts. Did they call me? No, my celebrity consultations are of a different ilk, as you will note in the following story.

Samson was the pride of the city of Milwaukee for many years. The fact that Samson was a gorilla should not have any adverse implications on the aesthetics of the natives of our fair city. Samson was a premier primate of immense size who entertained visitors to the Milwaukee County Zoo from the late sixties to the very early eighties. The gorillas are the largest of the apes, and Samson was the largest of the gorillas in this country. Visitors stood in awe as he ferociously wrinkled his furrowed brow at them and occasionally hammered on the reinforced glass walls of his large cage. Children tittered and chuckled as he daintily squeezed the juice from an orange into his mouth. "He's the Biggest!!" said Joe Milwaukee with that hubris

unique to our community when addressing the gaping visitor from the flatlands of Illinois who appeared stupefied by our King Kong.

Bigger is better, they all said. Samson is huge, so imagine what behemoths his male offspring will be. Thus began the orchestrated courtship of the zoo's superstar. Not any lady gorilla would do: this arranged "marriage" had more input than the commingling organized for the bloodlines of royalties of the great empires of the past. She had to be special, but mostly she had to be big. They checked out this female's ancestors more carefully than the most pernickety future mother-in-law. The size of her sire and her mother's sire were of major interest. Above all, she better be fertile! She better exude pheromones at concentrations adequate to lure even a eunuch. Her estrus cycle must be flawless. The search for Miss Perfection was on!

In the interim, it appeared that Samson himself was aware of the plans. He strolled around his cage, displaying his turgid member with increased frequency each day. These circumstances prompted a number of letters and calls to the zoo, apparently from older ladies, demanding that something be done to stop this impropriety. It was said that the only specific suggestion given was to put the gorilla in baggy trousers.

Rumors that Delilah had been found were rampant. The most-widely circulated one had her being transported from the Paris

zoo, resulting in radio and television wags doing their "Ol-lallah" routines ad nauseam. Expectant parents considered naming their sons Samson. Double entendres abounded. At long last, she was discovered in the San Diego Zoo. "Thank God," all cried, "an American girl." The circus environment continued. The director of the zoo lost all sense of decorum when he reported that the word was, "She's hot!"

What to do about the honeymoon? How to ensure connubial bliss? Where's the romance in all this? Do they need a mattress? Do they use the classic missionary position? What is gorilla foreplay like: Do they, pardon the pun, monkey around? Would they actually do it in front of spectators? More snickering comments on the air waves. Samson jokes at the office water cooler. This was the big time!

It was assumed that since most humans prefer to make love in private, gorillas, who are so like us in many ways (and vice versa), would prefer the same. The voyeurs in the community howled when the plan of privacy was announced. Samson's abode was cordoned off from the zoo visitors. Rumor had it that zoo personnel, their families, several aldermen, one state senator, the governor's aide, and maybe even our law-and-order police chief had front row seats. Stories that video cameras were on constantly were widespread. Some claimed that infrared cameras would document the



Dr. Cerletty is a professor, Division of Endocrinology with the Medical College of Wisconsin, Milwaukee.

nocturnal passionate activity.

You won't believe this. Nothing happened. Delilah (or whatever her name was) was completely ignored by Samson. She lay seductively in the cage, with her lips parted in the most sensuous poses, but he ignored her. Maybe he didn't know how to behave without the gaping throngs outside his cage. After two months, the show was opened to the public. Nothing happened. Could it be? God, no! This monstrous, muscular epitome of gorilla potency and fertility! Could he be—no, don't even think it! Could he—the public wasn't ready for this in 1970! A huge, gay gorilla? It was unthinkable! There was obviously another explanation. Someone suggested that he had encountered a missionary when he was an ape

toddler in Africa, who swore him to a life of celibacy.

Other, equally bizarre explanations were proffered.

Finally, as is customary in a society where the male is in charge, the blame was cast upon the female of the species. Delilah was a trollop, a slattern, a veritable ape harlot! What self-respecting ape would dally, much less copulate with that slut?

Thus began the procession of the apes. No international search this time. Just a series of local female gorillas. After six to eight weeks of inactivity, one would be replaced by another. The bimbo parade, it was called. After a year, Samson was left alone. His penile tumescence was again more visible, though less frequently than in the past. No one was ready to beg the question, so another male gorilla never entered his cage. Most people firmly believed that he was just waiting for Miss Right.

Medical opinion was obtained. Since apes have disorders similar

to humans, such input might be helpful. A beloved local endocrinologist was consulted, and he offered his erudite opinion. Since he was cognizant of the massive size and strength of the ape and the fact that a gorilla must be rendered comatose before a physical examination is performed, he referred the case to a burly urologist who he felt bore a striking resemblance to the primate. Samson's testosterone level was never questioned, and he had repeatedly demonstrated that the corpus cavernosa of his phallus were distensible. A sperm count? How could a sample be obtained? It seemed unrealistic to give him a plastic cup and a copy of a pornographic magazine. The issue was put on hold. Maybe, maybe, one could get a specimen, and artificially inseminate it into another Delilah, and the baby would be huge, and Milwaukeeans would be even prouder, and we all could brag more to those stupefied flatlanders, and on and on.

The months rolled by. In 1980, Samson reached his 31st birthday. He was treated to a cake, but no fellow gorillas were in his cage to share it. He looked as healthy as ever. No annual physicals, cholesterol levels or stress tests. His erections occurred less frequently, but, let's face it, he was, age-wise, over the hill. More plotting sessions were held—how to get his sperm? Lots of wacky ideas were proposed, none of which was accepted. On November 28, 1981, Samson arose from his slumber as usual. Two hours later, a keeper saw him collapse to the floor, victim of an apparent heart attack. A zoo code-4 was called, and the veterinarians and one physician arrived on the scene shortly. A dilemma arose. He was a pulseless non-breather. Mouth-to-mouth?

Chest compression? It was never considered. A sperm specimen was taken from his seminal vesicles and quick frozen. Observers reported that Samson roused slightly, smiled and died—a happy gorilla.

Samson was stuffed and is on display somewhere. In a freezer in our town is the seed of a prodigious ape, awaiting that really huge Delilah of tomorrow.





A Helpful Extension of the HIV Law

by Kalisa Barratt, JD, SMS Associate General Counsel

Earlier this year, a new law took effect that expands a physician's ability to report certain known cases of significant exposure to HIV to the state epidemiologist. The epidemiologist will then, in turn, notify the exposed individuals. Assembly Bill (AB) 280 was prompted by an infected man's refusal to inform his wife that he was infected. Before this law was passed, physicians were prevented from disclosing significant exposure without the consent of the infected individual because the disclosure would be a breach of the HIV-infected patient's confidentiality. Disclosure was only allowed if the infected individual was deceased. This put physicians in a moral and ethical quandary balancing patient confidences with the health of the general public.

Requirements

The new law allows a physician who receives a positive, validated HIV test result on a patient to report to the state epidemiologist the name of any person known to the physician to have been significantly exposed to the patient. Before reporting, physicians must do the following.

- First, the physician must advise the HIV-positive patient that he or she should apprise others of his or her HIV status if those others have been significantly exposed.
- Second, the physician must notify the patient that he or she will report the names of these

individuals to the state epidemiologist. Once notified, the state epidemiologist (through the Partner Notification Program) will contact the significantly-exposed individuals and inform them that they have been exposed to HIV. Importantly, the identity of the person who was responsible for the exposure remains anonymous.

This new law will mostly apply to reporting those known by the physician to have had sexual contact or shared drug needles with an HIV-positive patient because of the term "significantly exposed." "Significantly exposed" as used throughout the statute, means a contact with blood, semen, vaginal secretions, cerebrospinal, synovial, pleural, peritoneal, pericardial, or amniotic fluid, or other body fluid that is visibly contaminated with blood, by any of the following modalities: 1) transmission into a body orifice or onto mucous membranes; 2) exchange during the accidental or intentional infliction of a penetrating wound, including a needle puncture; 3) exchange into an eye, an open wound, an oozing lesion, or where a significant breakdown in the epidermal barrier has occurred; and, 4) other routes of exposure defined as significant by the Department of Health and Family Services.

Important Items to be Noted

This is a permissive and not a mandatory reporting requirement, allowing the physician to decide if and when to report names to the

epidemiologist. However, the only physician who may report is the physician who maintains a copy of the test result. The mere obtaining of information about a patient's HIV status without the actual test result does not implicate this statute.

Further, a physician who wishes to report persons significantly exposed to HIV must know the exposure actually occurred -- such as in the case of known sexual contact and known sharing of needles. A hunch or guess of exposure is not enough to trigger the statute. Obviously, accurate medical record documentation is critical.



Note that the statute only allows physicians to release the name of the person who has been exposed. Probably the result of a legislative oversight, there is nothing in the statute that would allow any other information (such as address or phone number) to be released. Although it does not make sense to only release names to the epidemiologist, physicians should be careful about releasing more information than is allowed by law. (See side bar for a sample form that may be used.)

If the physician fails to satisfy the law's two notification requirements or violates any other part of the HIV law, there could be severe penalties for breach of confidentiality including a \$10,000 fine and/or nine months in jail.

As a side note, there is a new informational hot-line for physicians who treat exposed health care workers, the National

Clinician's Post-Exposure Prophylaxis hot-line (888) 448-4911. This 24-hour hot-line is staffed by trained physicians who provide counseling and treatment recommendations for health care workers with needle sticks and other hazardous occupational exposure to blood borne pathogens.

Conclusion

This new law closes a loophole that has troubled Wisconsin physicians since the HIV law was passed and further allows physicians to protect the public from HIV exposure. The state has indicated it will not create special forms for physicians to use to document the notification process. Because of the severe penalties associated with a breach of confidentiality, physicians should carefully document discussions with the infected patient.

Consider using something like the form shown at the right.



Patient name_____

Medical Record Number_____

I, _____ have been counseled by Dr. _____ to inform individuals who have been significantly exposed* to me of my HIV status. Dr. _____ has also notified me that the name of any person known to Dr. _____ to have been significantly exposed to me will be reported to the state epidemiologist.

Persons known by physician to be significantly exposed (as defined in Wisconsin statutes 252.15(1)(em) - see below) as of this date:

Name_____

Name_____

Name_____

Name_____

Name_____

(Patient signature)

(Physician)

(Witness)

(Date)

Date epidemiologist notified _____.

*"Significantly exposed" means a contact with blood, semen, vaginal secretions, cerebrospinal, synovial, pleural, peritoneal, pericardial or amniotic fluid or other body fluid that is visibly contaminated with blood, by any of the following modalities: (1) transmission into a body orifice or onto mucous membranes; (2) exchange during the accidental or intentional infliction of a penetrating wound, including a needle puncture; (3) exchange into an eye, an open wound, an oozing lesion, or where a significant breakdown in the epidermal barrier has occurred; and, (4) other routes of exposure defined as significant in rules promulgated by DHFS.

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Your Financial Fitness

Insurance Overlooked by College Students and Parents

by Michael J. Dolan, CLU, ChFC,
President, SMS Insurance Services, Inc.

As millions of college students headed back to school this fall, many of them forgot to take crucial steps to protect their valuable possessions -- such as stereos, computers and televisions -- and to shield themselves from liability while at school, according to a new survey by the Independent Insurance Agents of America (IIAA) in cooperation with the College Parents of America (CPA).



Many students and parents may be in for financial loss because they are not properly insured. The survey found more than 80% of students who rent during the school year do not have renters insurance to cover theft of or damage to their personal property.

Student renters are not the only ones who need to think about renters insurance. Students who live on campus are generally covered by their parents' homeowners insurance for theft, but the limit of that coverage can vary from \$2,500 to \$10,000. Students with expensive computers, stereos, sports equipment, or televisions may want to contact their parents' insurance agents to make certain that these items are fully covered.

"An uninsured loss such as the theft of a laptop or a liability claim stemming from a party mishap can deal a devastating blow to a college student's limited bank account or the financial

livelihood of a parent already struggling with high tuition bills," IIAA Consumer Affairs Advocate Madelyn Flannagan pointed out. While one in six students and parents said they didn't buy renters insurance because it is "too expensive," typical policies that provide \$15,000 in personal property coverage and \$100,000 to \$300,000 in liability protection cost as little as \$100 to \$150 a year.

Students Most At Risk for Property Losses

- live away from home.
- rent (especially those who rent in their own name or co-sign a lease with a parent).
- live in group houses (including fraternity and sorority houses).
- own expensive electronics, sports equipment or jewelry (like engagement or class rings).
- live in large cities or high crime areas. (The FBI's Crime in the United States 1995 lists the numbers of property crimes on college campuses reported to police, by school. The report can be accessed on the World Wide Web at <http://www.fbi.gov>).
- travel frequently (including those who plan to travel or study abroad).
- run businesses from their dorm or apartment (like typing papers and notes, tutoring or freelancing).
- host frequent parties.
- have animals (especially dogs) at school.

For a free consumer brochure, "Renters Insurance: Shattering a Few Myths," call (800) 261-4422 or visit the IIAA's Web page, located at <http://www.iiiaa.org>. For a copy of the study, call the IIAA at (800) 221-7917.

How Students Can Guard Against Theft on Campus:

- Make sure all expensive electronic and sports equipment is engraved with a serial number or your name. Keep an inventory of all expensive items you take to school, along with original receipts and photographs, and keep it in a safe place.
- Leave the most expensive items (like good jewelry) at home.
- Always lock your dorm or apartment door, even if you're just running down the hall for a minute.
- If you live in a group house, always lock your bedroom door during a party.
- Don't leave your backpack unattended at the library.
- Report any suspicious incidents to the police or campus security. Many campus crimes go unreported.

Classified Ads

LA CROSSE, WISCONSIN. Franciscan Skemp Healthcare, Mayo Health System seeks BC/BE, residency trained emergency physicians or family practice physician to join five other physicians in the Emergency Medical & Trauma Center at Franciscan Skemp Medical Center. 15,000 EMTC visits annually with 40% admission rate. With over 130 active staff members in La Crosse, Franciscan Skemp Healthcare has two other hospitals and 12 clinics in the tri-state area of Wisconsin, Minnesota and Iowa. Located in Mississippi River bluff country, La Crosse, population 52,000, with metropolitan population of 110,000, offers numerous year-round recreational activities, ideal family environment, excellent public and private schools. Contact Tim Skinner (skinner.timothy@mayo.edu) or Bonnie Guenther (guenther.bonnie@mayo.edu), call 800-269-1986, fax CV 608-791-9898 or send to Franciscan Skemp Healthcare, Physicians Services, 700 West Avenue South, La Crosse, WI 54601. 5-6/98

University of Wisconsin-Stout, Student Health Services seeking MD. Full time, academic staff, 75% fiscal appointment, no call, weekends or holidays. Qualifications: BE/BC in family practice, internal medicine or pediatrics, Wisconsin medical license eligible. Responsible for direct medical care for students, clinical supervision/consultant to RNs, NPs and MT and share medical expertise with campus community. Start date is August 1998. Excellent benefit package includes malpractice protection. Submit

letter of interest, resume, and names and telephone numbers of 3 professional references to: Janice Ramaeker, Director, UW-Stout Student Health Services, Menomonie, WI 54751. Call 715-232-2114, FAX: 715-232-2103. Priority given to applications received by May 22, 1998. Search remains open until position is filled. 5/98

NORTH DAKOTA - Altru Clinic, a 180-physician multispecialty group (affiliated with the UND School of Medicine) seeking additional family physicians in Grand Forks, and satellite locations in North Dakota and Minnesota. Teaching/research available through UND and its Family Practice Residency Program, call 1-800-611-2777. 5-7/98

WISCONSIN - Enjoy a wonderful professional and personal lifestyle in this scenic vacation city on the Peninsula. Modern hospital is seeking an Obstetrician/Gynecologist to join established OB/GYN in a new multispecialty medical clinic. Flexible call schedule. There are over 250 miles of shoreline offering exceptional four season recreation. Four state parks in the area offer a wooded setting for hiking, biking and camping. Contact: George Ivekich at (800) 243-4353. 5/98

Hospitalist-Milwaukee - Join established six physician hospitalist group to provide inpatient care at two major area hospitals. Ideal candidate should

be board certified/eligible and conversant with internal medicine procedures including critical care. Good interpersonal skills, ability to manage resources would be desirable. Competitive package includes base salary of \$115K with full benefits and twelve weeks of vacation. Apply with resume to: Vice President, Professional Internal Medicine Services, SC, 3070 N. 51st Street, Suite 510, Milwaukee, WI 53210. Phone# (414) 445-7000; FAX# (414) 445-8876. 5/98

FAMILY PRACTICE - MARSHFIELD CLINIC: 550 physician multispecialty group seeking family physicians for clinics in Ladysmith, Rice Lake, and other Northern and Northwestern satellites. Outstanding practices offering the full range of family medicine. 1-800-611-2777, fax 414-784-0727. 4-5/98

VA Medical Center, Tomah, WI, is recruiting for **WEEKEND HOUSE OFFICER** coverage to begin no later than July 1, 1998. Must be board certified internist or family practitioner, and ACLS certified. Weekend tour of duty begins 7:30 p.m. on Friday and ends 7:30 p.m. on Sunday. Salary is based on qualifications and experience. Contact Dr. Gerald Spirek, Chief of Staff, at 608-372-1778. AA/EOE 4-5/98

URGENT CARE - UPPER MIDWEST. 180-physician multispecialty group seeking an additional Urgent Care physician - 40 hr./week, no call, outstanding compensation, located in University town with Medical School - teaching available. Call 1-800-611-2777, Fax (414) 784-0727. 4-5/98

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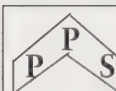
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SOUTHEASTERN WISCONSIN-PART TIME PRIMARY CARE PHYSICIAN. Bethesda Lutheran Homes and Services, Inc., a leader in the field of providing services to people with mental retardation, is seeking a licensed physician for this 2 day per week position. As part of our medical staff, you will provide primary care services for residents and work closely with the interdisciplinary team. This is a professionally and personally rewarding position for a caring medical professional. We offer a competitive salary and paid liability insurance. Please send CV to: Bethesda Lutheran Homes and Services, Inc., Director of Personnel, 700 Hoffmann Drive, Watertown, WI 53094, 1-920-261-3050; 1-800-383-8743. 4-5/98

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7:00 Awards

\$150 Player Fee

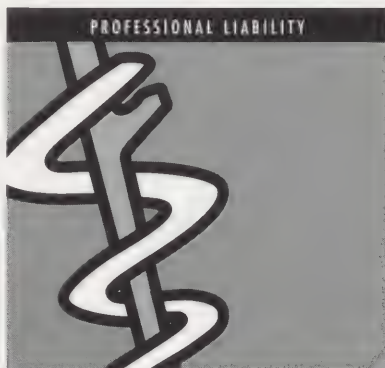
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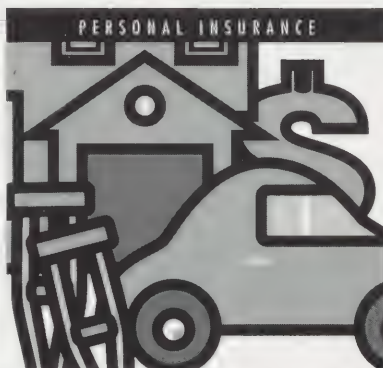


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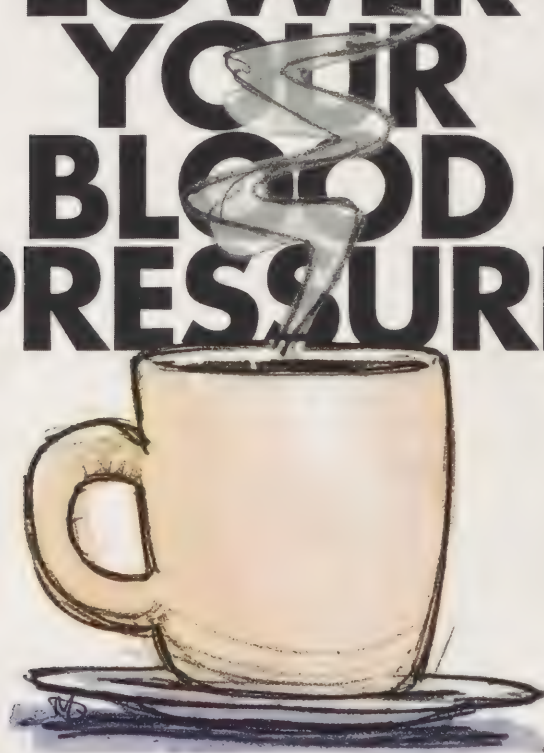
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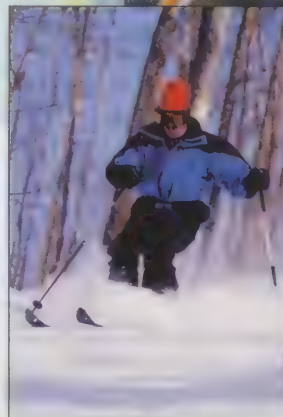
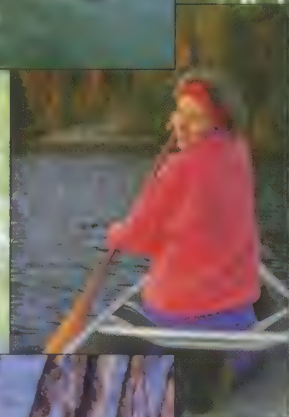
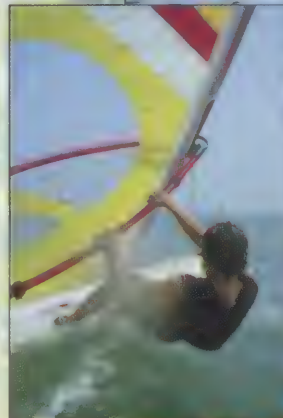
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In the Driver's Seat

by Judith D. Burke, Director, Publications & Communications



As a non-physician, the risk of being sued for medical malpractice is not one I'm likely to understand very well. But as a professional, I can imagine that the prospect of a lawsuit, of having my standards of practice called into question, would be traumatic regardless of the soundness of the complaint. I can empathize with the distress of being the target of someone else's criticism of a job performed to the best of one's ability. I can imagine that a malpractice suit would be one of the most horrible experiences of professional life.

Risk management and liability probably mean different things depending on one's perspective. If you are part of a large group, the cost of risk management may be shared in such a way as to decrease some direct culpability. If you are a solo clinician the responsibility of implementing risk management in your day-to-day practice activities may weigh more heavily on you. If you are in an academic or research setting, being sued for malpractice may not be something that is high on your list of concerns. Nevertheless, it is the responsibility of all health care providers.

This month, the *WMJ* looks at the many facets of risk management and liability and the changes you can make to safeguard your practice from lawsuits. The SMS Medical Liability and Risk Management Commission generated a large portion of the contributions for this issue, and we thank commission members and SMS Policy Analyst, Anne Bicha,

for their diligence and enthusiasm.

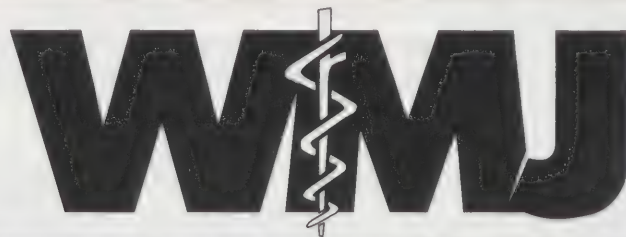
The topic is first explored in Dr. Riesch's President's Page column on **page 4**. The papers begin on **page 15** with *Practical Risk Management Tips for the Practicing Physician* by Thomas Kidder, MD. Norman Jensen, MD, discusses the importance of doctor-patient communication and gender issues in preventing lawsuits in his article, *Mal-doctoring and Mal-practice: Doctoring Malpractice*, which begins on **page 20**. In *A Review of the Florida and Virginia Damaged Neonate Funds: A Role Model for Wisconsin?* (**page 24**) Charles Schauburger, MD, looks at the high-risk obstetrics field and the changes made in the way two states provide financial relief to birth-related, neurologically-impaired infants. On **page 30** you'll find a report on the Medical Mediation Panel System in Wisconsin, and feature articles begin on **page 32**, with *Risky Business*, a look at the ways in which you can determine and minimize your risk. In *"It Could Never Happen to Me!"* (**page 35**) one physician shares his personal account of being named in a malpractice suit. Our From the Office of General Counsel column on **page 55** features a guest contributor this month, who offers a step-by-step guide to what you can expect to happen if you are sued. Additionally, be sure to see the SMS publication, *A Physician's Guide to Wisconsin Health Law*,

for information about a special SMS member benefit, the Physician Support Program, designed to help you and your spouse face the challenges of dealing with a lawsuit.

A medical malpractice suit may force you to change the way you practice. While change is inevitable, it doesn't have to be imposed; opportunities often exist to embrace change.

Putting risk management tools in place prior to being sued will help limit your liability and lessen the impact of a suit. We hope you will find the information in this issue a useful roadmap for directing necessary changes in your practice.

Special note: Due to budget reallocations, you will receive your Annual Report issue in place of a July *WMJ* in mid-July, and a combination August/September issue on school health will mail the second week of September. The August/September issue will feature a reader survey that will help the Editorial Board determine the future format of the *WMJ*. Please look for it and take the time to complete and return it to us. Your input is vitally important as we look to ways in which we can meet members' needs and do so in the most cost-effective ways possible.



Official Publication of the State Medical Society of Wisconsin



COVER THEME RISK MANAGEMENT AND LIABILITY

Taking steps needed to protect yourself from a medical malpractice lawsuit is similar to driving cautiously in traffic. You need to respond quickly to the most obvious obstacles, map out a detour when needed, and apply the brakes before problems arise.

This month, the WMJ looks at ways to take control in the office to protect yourself and what you can do if you are named in a lawsuit.

*Cover design by Eric Landmann,
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President's Page

Responsible to Our Patients and Our Profession

by John D. Riesch, MD

As physicians we have an obligation to our patients to be responsible. Responsible for their care. Responsible for giving good, trustworthy advice. Responsible for proper diagnosing. But as physicians, we also have a responsibility to protect ourselves—through organization, proper documentation, and skillful communication. If we don't take the extra time needed to be responsible to our patients and ourselves, we are asking for disaster. Behind

every innocent mistake or oversight, there are trial lawyers lurking around the corner, just waiting to make things messy. We physicians owe it to

ourselves to make sure we follow some extra steps in making our practices run smoothly and liability risk-free.

This issue of the *WMJ* provides an overview of the types of issues considered by the SMS Commission on Medical Liability and Risk Management. The health care market in the United States and Wisconsin has undergone rapid change over the past few years. Consolidation of physician groups and managed care organizations has resulted in new liability concerns to physicians. The Commission on Medical Liability and Risk Management is able to address these concerns and recommend policy to the SMS Board of Directors to help guide legislative and regulatory initiatives to improve the practice environment for physicians.

The commission decided to showcase its range of activities in this issue of the *WMJ*. This issue ranges from patient/physician communications to an overview of what to expect in the litigation process. The commission hopes this issue increases membership awareness of the types of liability and risk management issues facing physicians and educates the membership on these important issues.

The current charge of the commission is "to monitor current risk management developments and examine the range of options to reduce liability exposure." The commission has been in existence for many years and is currently chaired by Charles Schauburger, MD, an OB/GYN from La Crosse.

In fulfilling its charge, the commission has addressed many issues including: tort reform; noneconomic damages caps; informed consent; Patients Compensation Fund; medical mediation panels; medical liability insurance; telemedicine; expert witnesses; managed care liability; PCF/WHCLIP Risk Management Steering Committee Activities; practice parameters/guidelines; National Practitioner Data Bank; and the Physician Support Program.

The commission has discussed tort reform issues for over ten years, which have guided SMS policy on supporting caps on noneconomic damages and wrongful death. The commission has extensively discussed and made recommendations relating to

the Wisconsin Patients Compensation Fund over the past few years. The commission recommended to the Board of Directors that the threshold level for the Patients Compensation Fund be increased from \$400,000/\$1,000,000 to \$1,000,000/\$3,000,000 to allow the Fund to return to its purpose of covering very large claims and better enable the primary carriers to defend lower damage cases.

In response to the presidential theme "patient and physician advocacy" of past president, Marcia Richards, MD, the commission sought permission from the Board of Directors to adapt the California Medical Association document on Malpractice Liability and Managed Care to Wisconsin law to guide physicians on managed care issues in their practices. The document was published in the October 1997 Wisconsin Medical Journal and is available by contacting Anne Bicha at SMS ext. 237.

The commission, formerly known as the Medical Liability Committee discussed the Patients Compensation Fund Panel system from December 1984 until February 1986. The recommendation to change to a mediation system was adopted by the House of Delegates in April 1986. The Medical Mediation Panels were created by passage of Senate Bill 328 and enacted as Wisconsin Act 340. The commission has reviewed the Medical Mediation Panels annually (see page ____ for the 1997 Panels) for the last few

Continued on p. 10





John E. Patchett, JD

In 1997, members told us they wanted more help with the management of their practices. One area that was stressed was the need for help with Medicare, Medicaid and E&M coding. The SMS, through the Educational and Professional Services division led by Karen Garrett, has become known nationwide within the Federation for our consulting expertise and educational efforts. Every year, more than 6,000 people attend our educational programs.

The SMS was represented by Cyril Hetsko, MD, and SMS staff members Jo Ann Steigerwald and Pat Feldner at an AMA meeting in April with the Health Care Financing Administration (HCFA). As we announced in *Medigram* and on WISMED, this meeting led to an INDEFINITE delay of the 1997 E & M Documentation Guidelines. Implementation of the revised guidelines is targeted for July, 1999. The delay, though, does not mean HCFA audits will cease. Our staff will continue to educate and consult with your offices as the new guidelines are developed and implemented.

Member leadership in 1988 guided the development of an education and consulting effort, and more services in this area will continue to be offered. This month, I have asked Karen to share some of those efforts directed at meeting physicians' requests.



Educational Efforts Enhance the Professionalism of Medicine

by Karen Garrett, VP, Educational and Professional Services

Our number one goal in the SMS Educational and Professional Services department is to help physicians and their staff run effective offices. Sometimes a physician runs into a problem. It is our aim to assist you when the need arises, so you can concentrate on your number one goal — treating patients.

Recently, F. Bradford Meyers, MD, faced a Medicare audit. The audit surfaced a concern with how a code was being applied. Doctor Meyers enlisted the services of JoAnn Steigerwald and Tamara Larson to provide counsel and support. He wrote, "Without the help of JoAnn and Tamara, this review process would have been even more arduous than it was and the findings may not have been in my favor. Their expertise and the respect they enjoy within the WPS Medicare community greatly assisted our efforts to a successful resolution."

Our department consists of four consultants, two project coordinators and myself. The consultants are experts in the areas of Medicare, Medicaid, managed care, and CPT-4 and ICD-9-CM coding for all specialties. Our role is to provide educational programs for physicians and their office personnel on practice management issues and offer individual guidance and expertise. We want you to think of us as an extension of your business office staff.

Throughout the year, we offer seminars and workshops which cover a variety of practice management topics such as E&M documentation guidelines and Medicare. The programs are held at over 180 different locations around the state and cover approximately 40 different subject areas.

In addition to traveling around the state presenting our educational programs, we are available to answer questions via phone, e-mail or in-person. The department takes an average of 300 phone calls each month from members and their office personnel. The majority of callers have coding questions, which can be answered in as little as five minutes. Other callers have complex issues, which may take a good deal of investigation and follow-up such as the case with Doctor Meyers.

New products and services available this year include: on-site, customized education and practice management consulting. The consultants are available to perform chart review; help in developing a corporate compliance program, and provide education tailored to your individual needs. Many of the consulting projects completed thus far include a chart review followed by an



Continued on p. 10

Who's In The News



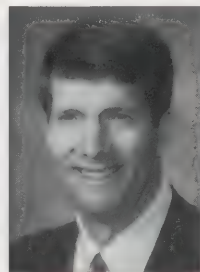
Jack Brown, MD



Bert Callahan, MD



Robert Coe, MD



Steve Pals, MD

Orthopedic surgeons, **Gerard G. Adler, MD**, of Wilkinson Medical Clinic, Oconomowoc, and **David J. Simenstad, MD**, of Marshfield Clinic-Lakeland Center, were inducted as Fellows of the American Academy of Orthopaedic Surgeons at the academy's 65th annual meeting in New Orleans. **Doctor Adler** earned his medical degree from the University of Wisconsin-Madison and served his residency at Blodgett Memorial Medical Center, Grand Rapids, MI. **Doctor Simenstad** earned his medical degree from the University of Wisconsin-Madison, and served his residency at the University of Utah, Salt Lake City, UT.



Rheumatologist, **Jon A. Arnason, MD**, began seeing patients at the UW Health-Sharpe Clinic the end of April. He earned his medical degree from the University of Iceland and completed his residency and fellowship in rheumatology at the University of Wisconsin-Madison. He is a clinical assistant professor at the UW Medical School and has been practicing at UW Health-Portage Community Clinic since 1995.

The Brown County Medical Society Alliance honored 13 community physicians on Doctor's Day with a cash donation to Golden House. Honorees this year were **Drs. Saied Assef, William Dierberg, Debbie Fischer, Steven Halsey, Kenneth Hujet, Christine Johnston**

Granfield (NM), Robert Johnston, Gary Leong, Robert McGucken, William Schneider, Darrell Skarphol, John Utrie, and Paul Utrie. The Golden House is dedicated to freeing families from violence in their homes.

Internist, **Laurel Brooks, MD**, retired from Deerfield Dean Clinic to spend more time with her family and friends. She earned her medical degree from Southern Illinois University, Springfield, and completed her internship and residency at the Medical College of Wisconsin Affiliated Hospital, Milwaukee.

Even though he has been retired since 1990, **Jack Brown, MD**, a family physician, keeps busy as a board member for the Morrow Memorial Home, Monroe County Human Services Department and the Museum of Modern Technology. Doctor Brown was given the first Sparta Sports Booster Award on March 27, 1998, for 45 years of volunteering as a sideline doctor.

Orthopedic surgeons with the Beaver Dam Orthopaedic Clinic, **Bert Callahan, MD, Robert Coe, MD, and Steve Pals, MD**, and the Beaver Dam Community Hospital worked together to open a new Joint Replacement Center located in the hospital. The opening of this center will allow the patients from the surrounding areas to remain close to family, friends and home during the treatment process. Since opening of the center, Doctor

Coe has left the Beaver Dam Orthopaedic Clinic.

Mark Decker, MD, along with his wife Denise, were honored by the Volunteer Center of Washington County for their initiation of the Washington County Coat Drive. They spearheaded the project that provided over 2,000 winter coats for West Bend needy. Doctor Decker is president of the General Clinic in West Bend and Aurora Group, OB/GYN and medical director of the Washington County Council on AODA.

Family physicians, **James R. Deming, MD**, of Skemp Lake Tomah Clinic, **James L. Esswein, MD**, of Chetek, **Jerome C. Kitowski, MD**, of Krohn Clinic, Black River Falls, and **Mark K. Villwock, MD**, of Prevea Clinic, Kewaunee, have completed continuing education requirement to retain Active membership in the American Academy of Family Physicians (AAFP). All have been active members since 1985.

John A. Devine, MD, was awarded recertification through the Executive Committee of the Bureau of Osteopathic Specialists of the American Osteopathic Association. Doctor Devine is a family physician with Mercy Walworth Medical Center and also holds a special certificate in geriatrics.

Tim Devitt, MD, from Kickapoo Valley Medical Clinic in Soldiers Grove, was one of the presenters at the Health Day Carnival-Fair hosted by students

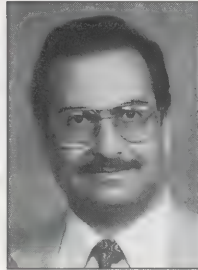
Who's In The News



Catherine Dremel, MD



W. Bruce Fye, MD



Shereif Rezkalla, MD



Raj Jain, MD

from kindergarten to sixth grade from the North Crawford Elementary School at North Crawford in April. He bought along a heart to help in explaining the workings of the heart and gave the children an opportunity to listen to the heart beat.

Catherine Dremel, MD, has been named medical director of the inpatient rehabilitation unit at St. Elizabeth Hospital in Appleton and the transitional rehabilitation unit at Franciscan Care & Rehabilitation Center. She is a board-certified psychiatrist and pediatrician, practices pediatrics medicine and rehabilitation for children and adults at La Salle Clinic, Menasha.

Joseph E. Geenen, MD, of Nashotah, was honored by the Marquette University alumni association at its National Awards Weekend in April. He will receive the 1998 Alumni Merit Award for his extensive work in the medical field. Doctor Geenen is currently a clinical professor of medicine at the Medical College of Wisconsin, and has devised various endoscopic tools which bear his name. He is also the editor of the *Journal of Endoscopy*.

Marshfield cardiologists, **W. Bruce Fye, MD**, and **Shereif Rezkalla, MD**, are contributing authors to a major new textbook of cardiovascular disease, *Textbook of Cardiovascular Medicine*. **Doctor Fye's** chapter is titled "A Historical Perspective." He is the American College of Cardiology's official historian

and has written many papers on various aspects of the history of medicine. **Doctor Rezkalla's** chapter (co-author with Dr. Robert Kloner, of California) is "Substance Abuse and the Heart." He is medical director for research in the clinic's cardiology department.

Karen Gremminger, MD, will provide oncology and hematology services at La Salle Clinic, Ripon. She is a Diplomate in medical oncology in the American Board of Internal Medicine and is board-certified in oncology.

Daniel Hansen, MD, a family physician with Walworth Health Center – Aurora Health Care, is retiring after 38 years of practice in the Walworth area. He earned his medical degree from Stritch School of Medicine at Loyola University, Chicago. Doctor Hansen served his internship at Rockford Memorial Hospital and residency in internal medicine at the Veteran's Administration Research Hospital in Chicago. He is a Fellow in the American Academy of Family Practice.

Stephen Hargarten, MD, of Shorewood, was recently named chairman of the Medical College of Wisconsin's Department of Emergency Medicine. He also practices at Froedtert's Level 1 Trauma Center. Doctor Hargarten specializes in firearm and automobile injuries. His efforts to reduce and prevent automobile-related injuries helped lead to the passing of seat belt

laws in Wisconsin in the 1980s. In 1997, he received a three-year grant to establish the nation's first Firearm Injury Center at the medical college.

Raj Jain, MD, of Sacred Heart-St. Mary's Hospital, earned certification from the American Board of Preventive Medicine as a specialist in occupational medicine. He is one of only 43 physicians in the state who have successfully completed the ABPM certifying examination. Doctor Jain is medical director of SAINTS Health Services for Business.



Surgeons, **Michael Karkkainen, DO**, and **John Pinkerton, MD**, and gastroenterologist, **David Stampfl, MD**, have joined the staff of Oconto Memorial Hospital. **Drs. Karkkainen** and **Pinkerton** are affiliated with the Marinette-Menominee Clinic; **Dr. Stampfl** is with Green Bay Gastroenterology Associates.

Robert Jaeger, MD, an obstetrician/gynecologist, was elected President of the University of Wisconsin Medical Alumni Association, a two-year position, at the association's annual meeting last month. Dr. Jaeger is a 1971 graduate of the UW Medical School and practices at the Rice Clinic in Stevens Point. **Sandra L. Osborn, MD**, a Madison pediatrician and SMS Past-President, was also named to the Editorial Board.

Who's In The News



Robert Jaeger, MD



Sandra L. Osborn, MD



Roland Liebenow, MD



Colleen Reichel, MD

Pediatrician, **Mark W. Kehrberg, MD**, was named medical director for La Salle Clinic, Appleton, and appointed to the Physician Management Committee for the La Salle Clinic Medical Division. Doctor Kehrberg earned his medical degree from the University of Wisconsin-Madison and completed his residency at the University of New Mexico Hospital, Albuquerque, NM, and at the University of Utah Affiliated Hospitals, Salt Lake City, UT.



Internist, **Mahendr Kochar, MD**, was elected chair of the American College of Physicians Board of Governors at its April meeting in San Diego. Doctor Kochar also received the Medical College of Wisconsin's highest honor, the Distinguished Service Award, at the college's 85th commencement exercises in May. He is chief of hypertension at the VA Medical Center and associate chief of staff for education. Doctor Kochar has distinguished himself as a leader in high blood pressure research and treatment, as well as in graduate medical education at the Medical College.

J. Brent Kooistra, MD, Madison pediatric allergist, is the camp director for Camp WIKIDAS (Camp in Wisconsin for Kids with Asthma) held in Wisconsin Dells. The camp is dedicated exclusively to teaching children how to manage their asthma and how to apply what

they are learning about their asthma to daily life.

Donald Lewellen, Jr., MD, ophthalmologist with the Eye Clinic of Manitowoc, was elected secretary of the board of directors of Holy Family Memorial Medical Center. Elected to the board of directors were **Karl Larson, MD**, family physician in Two Rivers; and **Steven Driggers, MD**, emergency medicine director at Holy Family. Outgoing board members saluted for their service included orthopedic surgeon **Joseph DiRaimondo, MD**, and family practitioner **Gary Schmidt, MD**.

Roland Liebenow, MD, a family physician from Lake Mills, was awarded the Ralph Hawley Distinguished Service Award. The award recognizes alumni from the Medical College of Wisconsin who also serve their community and become a significant force in the lives of local citizens. He has actively served the Boy Scouts, his church, and a variety of civic and educational enterprises, including secretary and president of the Jefferson County Medical Society, delegate to the SMS for 10 years, chair of the SMS Committee on Aging and Extended Care Facilities, and president of the Medical Staff of St. Mary's Hospital in Watertown. Doctor Liebenow was also vice president and medical director at CUNA Mutual Insurance Company in Madison for six years until his retirement.

Gundersen Lutheran Medical

Center and Marshfield Clinic are participating in a nationwide study of a children's vaccine for Lyme disease. The study in Wisconsin will be coordinated by **Todd Mahr, MD**, a pediatrician at Gundersen Lutheran in La Crosse, and **Brian Allen, MD** (non member), a pediatrician at Gundersen Lutheran's Onalaska clinic.

Surgeon, **Robert McKay, MD**, joined Myrtle Werth Hospital, Red Cedar Clinic – Mayo Health Systems in January. Doctor McKay is from the province of New Brunswick in eastern Canada and his special interests outside of medicine are the bagpipes and hockey.

Robert McManus, MD, of Columbia Hospital, Milwaukee, cardiothoracic surgeon and member of the Milwaukee Institute of Minimally Invasive Surgery, has been chosen to participate in an FDA-approved study designed to evaluate the safety and efficacy of transmyocardial laser revascularization (TMR) as an adjunct to traditional coronary artery bypass grafting. TMR is a novel therapeutic approach to heart disease.

Pediatrician **Teresa Mendoza, MD**, has joined Medical Associates of Baraboo. She earned her medical degree at the University of Wisconsin and did residency training at the University of Iowa Hospitals and Clinics Pediatrics Residency program.

John Noble, MD, was recently honored by the Ho-Chunk Nation upon his retirement. He was presented

Who's In The News



Peter Sanderson, MD



Lee L. Schloesser, MD



Joanne Selkurt, MD



L. Samuel Wann, MD

with an Indian blanket with the Great Seal of the Ho-Chunk Nation, followed by a traditional Indian meal. Doctor Noble practiced medicine at the Krohn Clinic in Black River Falls from 1951 to 1991, and later at the Ho-Chunk Clinic. He earned his medical degree from the University of Illinois and completed his internship and residency at Augustana Hospital, Chicago.

Pediatrician, **Karen Pletta, MD**, talked about her work and how she reached her current position at a special Take Our Daughters to Work Day sponsored by The Business Forum held at Hilldale Shopping Center, Madison. Doctor Pletta is associated with UW Health Physicians Plus, Madison.

Colleen Reichel, MD, pediatrician with West Bend's General Clinic, met with seventh grade students at Silverbrook Middle School to discuss the role of mathematics in the medical profession. The students interviewed Doctor Reichel and used her responses to write an essay for language class. Doctor Reichel was an integral part of Silverbrook's Career Day Program.

Peter Sanderson, MD, of Plover Family Practice has been appointed Chief Medical Officer of Saint Michael's Hospital rural network of clinics, which includes Iola Family Practice, Plover Family Practice, Amherst Family Medical Center and Chain O'Lakes Family Clinic in Waupaca. He

earned his medical degree from the Medical College of Georgia.

Lance E. Sathoff, MD, will be joining the staff of the Orthopaedic and Sports Medicine Clinic of Monroe in August. He is finishing his orthopedic residency at the Medical College of Wisconsin. Doctor Sathoff specializes in muscular skeletal injuries and surgery with emphasis on sports medicine, arthroscopic surgery, and arthritis surgery. He has presented original research at national meetings on anterior cruciate ligament repair, surgical treatment of hip fractures, childhood deformities and treatment options for fractured legs.

More than 200 employees at the Marshfield Clinic were honored for their years of service at the 1997 Marshfield Clinic Employee Awards Program held in April. Physicians honored were: **Lee L. Schloesser, MD**, 40 years of service; **Tarit K. Banerjee, MD, J. F. Nunez-Gornes, MD**, and **Jefferson F. Ray, III, MD**, 25 years of service; and **Robert H. Hackney, DO, John P. Kirchner, MD, Richard A. Leer, MD, Alan K. McKenzie, MD**, and **Douglas B. Peterson, MD**, 20 years of service. Awards were also presented to 15 and 10-year employees.

Joanne Selkurt, MD, pediatrician at Gundersen Lutheran, Whitehall, received the highest honor in Girl Scouting, The Thanks Badge II, at the Girl Scout Annual Awards Banquet. Doctor Selkurt is a 21-year adult

member of Girl Scouting and an active Girl Scout leader for over 15 years.

Gregory A. Shove, MD, was inducted as a fellow of the American College of Physicians (ACP) at the Society's 79th Annual Session. Fellowship in the ACP is an honor achieved by those physicians recognized by their peers for personal integrity, superior competence, professional accomplishments and demonstrated scholarship. Doctor Shove is associated with All Saints Medical Group, Racine, and is chair of the SMS Task Force on Governance Structure.



Jean Slane, MD, family physician from Wauwatosa, medical director of Wiselives Clinic, has been elected to membership in Professional Dimensions, an association of business and professional leaders. Doctor Slane teaches medical students and residents and conducts research in addition to coordinating community outreach and education for the clinic. She received her medical degree from the Medical College of Wisconsin.

L. Samuel Wann, MD, has been named chair-elect of the board of governors of the American College of Cardiology. Doctor Wann practices cardiology with the Milwaukee Heart and Vascular Clinic and is president of the Wisconsin Chapter of the American College of Cardiology.

Welcome New Members

The individuals listed below were recently elected to SMS membership by their County Medical Societies. We are pleased to welcome them to the SMS.

Dane

John G. Brady, MD
Jannette Collins, MD
Michael E. Corea (S)
Shanker N. Dixit, MD
Daniel A. Eimermann, MD
Linda Grossheim (S)
Shara Grover (S)
Sara Henry (S)
Charles J. Hodulik, MD
Brian Hoerneman (S)
Andrew J. Kessler, MD
Fazal M. Khan, MD
Karie Mantey (S)
Daneille Robertshaw (S)

Waukesha

Kurt F. Konkel, MD

(S) designates medical student membership

AMA Awards

The Wisconsin Physicians listed below recently earned the AMA's Physician Recognition Award. They have distinguished themselves and their profession by their commitment to continuing education, and the SMS offers them its congratulations. The • indicates members of the SMS.

- Shanta Ayengar, MD
- Pamela J. Butler, MD
- Janet Lea Chene, MD
- Dennis T. Costakos, MD
- Paul W. Grotenhuis, MD
- Leighton P. Mark, MD
- Kathleen J. McGinnis, MD
- Milton R. McMillen, MD
- Rama Prosad Mukherjee, MD
- Arnold S. Potek, MD
- Gregory Reiser, MD
- Arthur J. Ross, MD
- Douglas A. Sallis, MD
- Katherine A. H. Shaffer, MD
- David M. Sherman, MD
- Victorino G. Vergara, MD
- Walter Wong, MD
- Thomas W. Zoch, MD



President's Page — Continued from p. 4

years with the reaffirmation of SMS policy in support of the Medical Mediation Panels at the April 1998 House of Delegates meeting. The annual report to the legislature, submitted by Randy Sproule, JD, Medical Mediation Panels Administrator, has been reprinted in this issue for your review.

I hope you will take time to read this special report and consider the advice and ideas of your colleagues presented throughout the issue. Again, it is vital that we take the extra steps needed to remain responsible to our patients and our profession.

EVP Report — Karen Garrett Continued from p. 5

completed thus far include a chart review followed by an educational session based on the chart review results.

"Physician only" seminars are in the planning stages. These educational opportunities will be offered at a time and place convenient for members and will cover topics requested by way of the membership census. Please watch the Medigram and special notices for more information, and please feel free to contact me should you have any questions, at SMS ext.

383 or via e-mail at:
KARENG@smswi.org.

In Remembrance

Baldwin, Stephen R., MD, 44, passed away on Friday, April 10, 1998, in Brookfield. Doctor Baldwin received his medical degree in pulmonary and critical care medicine from the University of Wisconsin-Madison. He completed an internship and fellowship at Southwest Michigan Area Health Education Center - Bronson/Borgess Hospitals, Kalamazoo, MI. He was appointed chief of staff at West Allis Memorial Hospital in 1985, where he served until his death. Doctor Baldwin was a partner in Midwest Pulmonary and Critical Care Associates in Wauwatosa.

Doctor Baldwin is survived by his wife, Lori; two children: Meghan and Evan; his parents, Ridge and Marcy; his father-in-law, Clair Branch, of Kalamazoo, MI; four sisters: Carrie (Mike) Schmitt; Pattie (Jerry) Lorch; Debbie; and Laurie (Bob) Kontney; and a brother, Joe.

Gumberman, George J., MD, 91, passed away on Friday, April 3, 1998 in Tucson, AZ. He earned his medical degree from Marquette University Medical School and completed his residency at St. Agnes Hospital, Fond du Lac. He practiced in Milwaukee for 38 years before retiring to Arizona. Doctor Gumberman was granted SMS Life Membership in 1984.

Doctor Gumberman is survived by his son, George III, of Tucson, AZ; a daughter-in-law, Sheila, of Santa Fe, NM; two grandsons: George IV and Steven; and four great grandchildren.

Loftus, Edward Roe, MD, 79, passed away on Thursday, April 2, 1998. Doctor Loftus received his medical degree from the Albany Medical College of Union University, Albany, NY.

He served his internship and residency at Grasslands Hospital in Westchester County and practiced medicine with Herman Tarnower, MD, in Scarsdale, NY.

He served as a Captain in the U.S. Army Medical Corps from 1953 - 1955, receiving the Army Commendation Medal for his part in the repatriation of American POWs during the Korean War. He continued serving in the U.S. Army Reserve and received the Meritorious Service Medal. He commanded the 44th General Hospital in Madison and Menasha and the 452nd EVAC Hospital in Milwaukee and retired a Colonel in 1978.

Doctor Loftus was Director of the Wisconsin State Sanitarium in Wales, WI (1955-1957) and Assistant Clinical Director at the Winnebago Mental Health Institute (1957-1982). He was in private practice in Neenah until his retirement in 1990. After his retirement he served as Medical Director of the Vallhaven Care Center in Neenah.

He was a member of the American College of Chest Physicians, a Diplomate of the National Board, a Fellow in the Society of Military Surgeons, and member in the Winnebago County Medical Society and the AMA.

Doctor Loftus is survived by his wife, Barbara; his daughter, Lydia (Roger) Anderson; his son, David; and a grandson, Ross Scherer.

Welsch, Raymond G., MD, 83, died on Thursday, April 9, 1998. Doctor Welsch was the first pediatrician in Kenosha and the first medical director of Kenosha Hospital where he started and was in charge of the emergency room. He earned his medical degree from St. Louis University Medical School and

took graduate courses in medicine at the University of California, University of Kansas, University of Michigan, University of Minnesota, and the University of Colorado. He served his residency at Milwaukee County Hospital.

He served in the U.S. Navy as a medical officer in the South Pacific as a Lieutenant from 1942-1946.

Doctor Welsch was president of the Kenosha County Medical Society, president of the medical society at St. Catherine's Hospital and Kenosha Hospital, member of the American Academy of Pediatrics, charter member of the Emergency Room Physicians, member of the SMS Commission on Public Information, delegate to the SMS House of Delegates, and a member of the SMS 1991 Fifty Year Club.

His awards and achievements include: a citation from the United Way, Page One award from the Kenosha Newspaper Guild, Outstanding Leadership Award from Kenosha Education Association for polio prevention, an award from the city of Kenosha for his work as the physician coordinator of emergency medical technician's training programs, Distinguished Alumni Award from St. Mary's University and an AMA Award for his work in continuing medical education for starting a program for medical students to serve summer internships with hospitals and doctors. He also ran the polio program for Kenosha and the first disaster program in Kenosha.

Doctor Welsch is survived by his wife, Charlotte; two daughters: Patricia Stevens and Judy Jesse; and two grandchildren.



Guest Editorial

SMS Governance — A Critical Juncture for Change

by Mark Andrew, MD

*"Nothing endures
but change."*

Heraclitus (c.540–c.480 BC)

This oft-quoted phrase, and its various permutations, certainly applies to medicine today. Times have changed, and will continue to change, for our profession — ranging from the practice modes and priorities of our physician members to the ever increasing intrusion of external forces into our daily practices. How we survive as a profession and certainly as the State Medical Society of Wisconsin (SMS) depends largely on how we meet the challenge of these changes.

The Task Force on Governance Structure was created by the House of Delegates in 1996 in response to Tom Adams' report to that House. Mr. Adams placed us (in 1996 and extrapolated to the present) at a critical juncture as to our governance structure and the participation of member physicians in Society activities at all levels. He encouraged us to look at "alternative means of enhancing member participation and the Society's ability to set timely and effective policy...to deal with the problems of today while looking ahead to the challenges of tomorrow."

Mark Andrew, MD, Chair of the SMS Board of Directors, is a general surgeon in Viroqua.



I couldn't agree more that a re-examination of the way we do business as a Society was, is, and will continue to be necessary. However, the question remains as to whether a new governance structure will be more able to meet the challenges of organized medicine today than what is possible within our current Society structure. Given that we have not made a concerted effort (probably overdue) within our current organizational structure to address these challenges, I would argue that this should be our first approach. This seems the most feasible, most expedient to implement, and yet still addresses the majority of concerns that have been raised.

The charge to the Governance Task Force was as follows:

"This task force shall study the current governance structure of the State Medical Society and make recommendations for potential change. The study shall include, but not be limited to, the following areas of the Society's structure:

1. The need for the House of Delegates and component societies;
2. The basis of representation to election, size, and operation of the Board of Directors;
3. The establishment of an SMS governance structure which appropriately represents a membership engaged in the many faceted types of medical practices utilized in various health care deliver areas;
4. The establishment of a process which assures to the

greatest extent possible that the SMS governance structure will appropriately evolve to meet the needs of the membership."

An interim or final report, if possible, was to be presented to the 1997 House of Delegates. The Task Force was also asked to consider the Nominating Committee and the Resident Physician Section. (A Resident Physician seat was created on the Board of Directors at the 1997 House of Delegates, satisfying this issue as raised.)

An interim report from the task force was given, and a town meeting held, at the 1997 House of Delegates. A final report was presented, and an additional town meeting held, at the 1998 House of Delegates, during which the final report was introduced as the basis for changes in the SMS Constitution and Bylaws for implementation of the changes in our governance structure as recommended by the task force. The recommendations were received with little support. However, this report does serve to get the issues on the table, with the option of altering the proposed changes as necessary to truly meet our Society's needs prior to a final vote at the 1999 House of Delegates.

Can we do a better job of providing access into our organization to address issues in a timely fashion? Absolutely. Mr. Adams was right when he stated, "It is no longer practical or possible to meet just one time a year and set policy for an organization with issues as complex as those that face SMS."

Can this be addressed with some basic changes to our current governance structure? Absolutely, as I will address below. I do not agree with Mr. Adams' suggestion that we do away with the House in favor of investing most of its authority in the Board, albeit adjusted. The traditional democracy of our organization, based in our regional representation in the House of Delegates, has served us well and can be maintained, providing even more input from the Delegates than once yearly to augment the Board's decision making. I am intimately familiar with the current workings of the Board of Directors, and I do feel we could use additional input from the general membership and the House more often during the year as critical issues surface. The Board is officially vested with the authority to deal with these issues in the absence of the House, i.e., between Annual Meetings. This does have the potential to limit full consideration of controversial issues outside the Board setting prior to action being taken. Subsequent discussion and reconsideration of such Board decisions on these time-sensitive issues at the following Annual Meeting serves little purpose other than aggravating potential divisiveness within our Society, which no one needs, and to put us in a poor light as the "one voice of Wisconsin physicians."

We can definitely do a better job in many of these areas and, to that end, I would like to raise the following suggestions:

1. The current House of Delegates will be retained with the same basic composition and mechanisms as currently exist to ensure specific faction/special interest representation where felt appropriate. Certainly, one

could consider more regional selection of delegates as opposed to our current county-based system, but this geographic foundation remains the best way to ensure input from around the state.

2. There will be no term limits on Delegates. As anyone who has attended the House of Delegates can tell you, it's difficult to find enough physicians willing to serve as Delegates and attend the Annual Meeting without imposing term limits on those interested and willing to make the commitment. If we had a wealth of interested individuals chomping at the bit, it might be different, but we do not have this luxury at this time.
3. An open, more expedient process will be implemented whereby a resolution (or an issue) could be submitted to the Board at any time during the year. (In reality, the potential has always existed for members to bring issues of pressing concern before the Board at any meeting, but most members are unaware of this and, certainly, this is not utilized very much at all.)
 - a) The Board meetings would start with a time-limited, open forum session when resolutions or "issues" could be brought before the Board for consideration. Also, resolutions previously presented and now brought back to the Board would be further discussed here and action potentially taken. The Speaker of the House and the Board Chairman would co-chair this portion of the meeting.
 - b) The resolutions/issues so submitted would be subject to a triage process for direction to an existing and appropriate commission

(possibly expanded from current format and functioning as "Ref-Coms"). It would be preferable that all commission chairs would thus attend each Board meeting.

- c) The commission would then meet as necessary in order to present a recommendation to the Board, preferably at its next meeting. There would be time allotted at the commission's meetings to allow for discussion of each resolution by all interested parties as necessary.
- d) Prior to final action by the Board, the resolutions would be presented to the Delegates by e-mail, *Medigram*, etc., offering an additional opportunity for input and raising awareness of the issues for the Delegates and their local constituency to possibly attend the next Board meeting to discuss the issue further.
- e) Agendas for all Board and commission meetings would be posted ahead of time via e-mail or in *Medigram*. Results and minutes of the meetings would also be posted as soon as available by the same means.
- f) Technology (video conferencing, teleconferencing, etc.) should be made available wherever possible, with the sites chosen for Board/commission meetings selected with this in mind. However, Directors on the Board would be expected to attend in person whenever possible — sidebar and behind the scenes discussions remain extremely valuable in information gathering and consensus-building.



- g) Board meetings overall would be held on the same basic schedule, with some desirable rotation around the state to allow increased accessibility for all members. I would specifically anticipate holding the July and October Board meetings more out-state (i.e., out of Districts I and II), since the weather should be more conducive to travel at those times of the year.
- h) After discussion of this overall proposal at our July Board meeting, I would like to try implementing this approach at our October Board meeting. I would expect more details to be forthcoming after the July Board meeting.

4. The Annual Meeting would still be held once yearly, incorporating a "Forum" function as well. Since many issues would've been handled during the year, there would be fewer resolutions/issues to come before the House at this time, freeing up time to bring in speakers on issues of general medical interest.



- a) "Reference Committees" (Ref-Coms) would actually be subsets of the Society's commissions, possibly with less emphasis on needing to complete the entire resolution process at the Annual Meeting.
- b) As suggested, the time would also be used to create/enhance relationships with specialty societies, encouraging them to hold their own events in concert with the SMS meeting as was done previously. The drawback to this proposal would be the need to hold the Annual Meeting at loca-

tions able to accommodate the larger attendance.

- c) Official Society functions would be carried out at this meeting.
- d) It is hard enough to get Delegates attending once yearly without expecting official involvement and attendance 24 times that amount. Also, the expense, for both the Society and the Delegates, would be greatly increased under that scenario. (An additional expense figure of approximately \$60,000 was calculated for the additional meeting expenses.)

5. The Board of Directors' composition formula would remain as it currently exists. Contentious and divisive battles in this area do not need to be revisited. The current size seems to work reasonably well and is reasonably well-accepted across the state. With the previously agreed on cap of Board seats at 31, any additions/"designated seats" would either upset the existing formula if incorporated therein or potentially expand the size of the Board unacceptably.

6. The functions of the officers of the Society would remain as at present. The positions of Speaker and Vice-Speaker are best served with physicians committed to those positions with some degree on continuity for effectiveness. Also, maintaining our current structure opens more leadership positions for interested members.

7. The Nominating Committee would continue to function as currently, but with open and approved guidelines for the selection of candidates for the Society's leadership positions. Any "unwritten" guidelines should be codified for clarity

for all. If a "leadership development" function needs to be incorporated, this could be carried out at the Board's Executive Committee in an on-going fashion and in conjunction with commission chairs and staff input. At-large and contentious state-wide elections are to be avoided, with their potential for divisiveness and loss of participation by the losing party(s).

Summary

These are just a few suggestions as to how we could work within our current governance structure while making our Society more time responsive and member-participatory on the many issues facing the physicians of Wisconsin today and in the future. We should make the changes necessary to ensure the future of our organization, but I do think the changes made should accomplish the goals as outlined and not be made merely for the sake of change itself. After the discussion of the task force's recommendations in April, I think any changes in our governance structure are best made from within with less disruption, less divisiveness, and, indeed, less expense than what the Governance Task Force has proposed.

Initiation of these changes can begin as indicated at the October Board meeting, with more details to follow. Ongoing evaluation will indeed reveal the success of these changes in meeting our Society's goals and the needs of our physician members.

If you would like to give me feedback or suggestions, please call the SMS Message Center at: (800) 762-8975 mailbox 510. Additionally, you can e-mail your comments to me at: mhamdvmh@frontiernet.net.



Practical Risk Management Tips for the Practicing Physician

by Thomas M. Kidder, MD

Many unrecognized pitfalls that could trigger a malpractice lawsuit lurk in the daily practice of medicine. Fortunately, many of these risks can be pre-empted or minimized by a few simple, common-sense risk management strategies which can be easily incorporated into the physician's office, clinic and hospital practice. The key is to consciously make these tactics part of your everyday, standard operating procedure so that they become second-nature to you and to those who work with you in caring for patients. This article will identify some of the common liability risks encountered in your daily practice and suggest practical ways for minimizing your exposure. As a result, the care and service you provide to your patients will improve, and so will your peace of mind.

Documentation

Failure to record and document the substance of phone conversations with or about patients is universally recognized by risk

management experts as an especially vulnerable area in medical liability. Courts may choose to ignore verbal testimony not supported by the written medical record. A summary of information obtained by the physician, advice given, arrangements for follow-up and any medications prescribed, including dosages, amount, precautions and telephone number of the pharmacy, should be entered in the patient's medical record. This requirement exists whether the phone call is being taken by the patient's physician or by a covering physician. The key point is to document the essence of any telephone communication regarding a patient.

There are various ways to accomplish this documentation: phone messages can be written in the chart, written on a telephone message pad, or dictated onto a cassette tape. One physician uses a dedicated, unlisted phone line at his office connected to a telephone message answering machine. After hours or on weekends, the physician on-call can dial the answering machine and leave a message which, on the next business day, can be brought to the attention of the attending physician and transcribed into the patient's chart. This obviates the hassle of writing messages on slips of paper, encourages more complete entries, makes the documentation of phone conversations less burdensome,

and reduces the risk that an important communication will be overlooked. Variations on this method may be applicable to a variety of practice situations.

Office-based Risks

Most primary care physicians and many specialists spend much of their practice time in an office setting. Not surprisingly, an increasing proportion of medical liability claims arises from office-based occurrences, e.g., failure to diagnose, medication errors, failure to provide informed consent. In many ways, office-based risk management lends itself to effective strategies because the techniques can be customized to the particular specialty and to the practice styles of individual physicians and their office staffs.

Telephone

The telephone is a sine qua non of office practice. The office staff must handle phone calls with courtesy, sensitivity and confidentiality. Phone messages should be expeditiously transmitted to the appropriate person in the office (e.g., physician, nurse, billing or insurance clerk), and office support staff must not dispense medical advice, refill prescriptions or make decisions regarding the necessity or urgency for medical

Doctor Kidder is with the Medical College of Wisconsin, Milwaukee. This paper is based on a series of articles by the author published in *The Bulletin of the American Academy of Otolaryngology-Head and Neck Surgery* in 1995, and printed here with permission.

care without proper authorization from a physician or nurse. Many excellent in-service programs are available for training office staff in telephone etiquette.

Phone messages need to be returned in a timely fashion. Some physicians find it helpful to have certain call-back hours when patients can expect a return phone call. Have the patient's chart available when you call; document the essence of the call, advice you gave, prescriptions called in (including drug, quantity, dose, precautions and pharmacy) and follow-up arrangements.

Office Safety

Comply with local, state and federal regulations regarding the handling and disposal of hazardous materials. This includes biologic materials (e.g., blood, cultures) as well as chemicals (cleaning agents, copier toner, even typewriter correction fluid). Post notices relative to hazardous materials as required by law.

Periodically do a walk-through inspection of your entire office, corridors and premises, checking for defective furnishings or equipment, fire hazards, torn carpeting, poor lighting, etc. If you see children in your practice, attempt to child-proof your office as much as possible. If you supply your waiting and examining rooms with "community property" toys, remember that, though cute and trendy, such attractions are fomites which can disseminate disease from oral and nasal secretions and unwashed little hands that come into contact with them. Better to let children bring their own toys from home to amuse themselves while they wait.

Schedule regular maintenance checks on potentially hazardous electrical equipment (e.g., X-ray and electrocautery machines, light sources, sterilizers) and promptly

repair or replace any defective equipment.

Be prepared for emergencies. It is highly desirable that you and your office staff maintain certification in basic life support (CPR) and have basic equipment readily available to initiate emergency resuscitation measures. A specific plan for summoning emergency help or transportation to your office and for dealing with disasters such as fire, tornado, flood, earthquake, etc., should be in writing, known and rehearsed at regular intervals by all your office staff.

Prescription Renewals

Prescription renewal procedures should be standardized. Always inquire about medication allergies, adverse reactions and concurrent

Informed consent is a process, not a legal form on paper.

medications. Exercise extra caution when renewing controlled substances; establish a written policy for renewal of prescriptions by office personnel and document in the chart the drug prescribed, including dosage, quantity, precautions, pharmacy called, and who made the call to the pharmacy.

Informed Consent

Informed consent is a process, not a legal form on paper. The physician — not the nurse or scheduling secretary — must inform the patient of the rationale, benefits, risks, and all alternative, viable medical modes of treatment to the proposed procedure or treatment. The consequences of no treatment at all must also be

explained to the patient. A note documenting that this communication transpired between doctor and patient is required by law in Wisconsin and should be entered in the chart. Requiring informed consent for administration of blood or blood products has also recently become law in Wisconsin.

Diagnostic Tests

A standardized method for test result notification should be established, especially for positive test results. The physician should review and initial all patient data reports (lab, X-ray, consults, correspondence) *before* they are filed in the chart. A fail-safe method (whatever will work in your own particular situation) should be implemented for notifying patients of results.

Any diagnostic procedures performed in your office — X-rays, lab tests, endoscopy or others — are held to the same standards as if the procedure were done in a hospital or other certified facility. The judicial system does not recognize cost containment as an acceptable reason for providing inferior or substandard services.

Follow-up or tickler systems should be established for your office. Use them to follow-up on abnormal lab or X-ray results, ensure that patients with conditions that warrant periodic surveillance (cancer, hypertension, cholesteatoma) are scheduled for and keep appointments, and to ensure that patients referred to consultants have indeed been seen by those consultants.

Printed informational materials on diseases, procedures and operations, office policies, pre- and post-op instructions, including what patients should be alerted to in the post-op period and when and how they should contact you, should be provided, and the distribution of such documented.

The "Difficult" Patient

Don't become visibly angry with a patient; don't lose your cool. You can disagree, reprimand, or refuse to cave into demands without exhibiting anger or sarcasm.

Be prudent in billing matters; carefully consider billing for treatment of complications or iatrogenic injury. Be sensitive to true financial hardship. Read the computer-generated billing letters your office or billing agency sends out — is their tone offensive? A delinquent account should never be sent to collection before the physician has reviewed the case and approved the action.

Document in the chart and follow-up on missed or cancelled appointments, especially in the case of a complication, poor result, unhappy or noncompliant patient.

Formally terminate your doctor-patient relationship with patients whom you choose not to continue seeing (e.g., chronic no-shows, chronic nonpaying, true personality conflict). Always terminate the relationship in writing, and send the letter by registered or certified mail, return receipt requested. You are not obligated to refer the patient to a specific physician for continuing care; you can suggest that he/she contact the local medical society referral service. But you must afford the patient a reasonable period of time (usually 30 days) to find another physician. Appropriate form letters for terminating your relationship with a patient are available through county or state medical societies.

The Medical Record: A Legal Document

The medical record is truly a legal document, not just a notebook of shorthand communications among

physicians. This applies whether it is an office or a hospital chart. While the actual chart belongs to the physician, clinic or hospital, the *information* contained within the record belongs to the patient. It is not appropriate to withhold transfer of records because of an unpaid bill, assuming proper authorization for release or transfer of information has been obtained from the patient.

Courts use the following criteria to judge medical records: accuracy, consistency, completeness, and objectivity. It goes without saying that legibility is crucial to determining whether a given chart meets these four requirements. If an entry is illegible, the information it contains is presumed not to be there.

All notations should be objective and professional; avoid entries which could be construed as judgmental, insulting, deprecating or reflecting anger on your part. Think how your note will sound if read aloud in court several years hence. The medical record is not the place for gamesmanship, one-upsmanship, light banter or sparring with other physicians.

Make an effort to give your entries substance, i.e., record your thought processes and rationale for pursuing a particular clinical course of action, especially if the latter is somewhat unconventional.

Except when the original chart is subpoenaed, it should never leave the premises of the office, clinic or hospital. When release of information from a medical record is requested by an attorney, the chart and the request should be reviewed by the physician, and a signed authorization or court order should generally accompany the request. Depending on the situation, the liability insurance carrier may need to be consulted or informed.

There are at least four reasons

why "good" medical records are important:

1. Improves patient care.

Since the medical record is a common channel of communication for all those involved in the patient's care, it clarifies the role that each participant is playing, fosters attention to detail and development of a logical game plan for management of the clinical problem(s).

2. Reduces the risk of error.

There is less chance that some important historical or clinical information or observation will be omitted, overlooked or illegible. A "good" medical record also facilitates the transition if a patient is transferred to the care of another physician or institution.

3. Provides legal protection.

In court, that which isn't written down may be presumed never to have occurred. Years after an incident has occurred, the medical record is usually the only objective repository of information about the case. All entries in the chart should anticipate a potential future defensive role in litigation.

4. Fiscally important.

It is essential that records be complete enough to document the level of care provided. Retrospective review of poor quality medical records may result in denial of payment or monetary penalties imposed by government or other third party payers.

Do not, for any reason, **ever** alter the medical record! True, a simple typo, grammatical, spelling or other error in the record can be crossed out with a single line (so that the original, flawed entry can still be read), and the correction entered, initialed and dated. However, it is prudent not to do this long after the initial entry was made if you think, even remotely,

that the case might go to litigation. While it is natural to wish the records had been more complete or detailed than they are (it is the rare chart, indeed, that could not be improved retrospectively in completeness or accuracy), resist the urge to embellish, change or delete any entry in the record after the fact. Doing so will virtually guarantee that your case will be rendered questionable. Altering the medical record is actually a misdemeanor in some jurisdictions. An item in the record which, to the defendant physician, seems certain to doom the case may, in reality, be explainable at deposition or trial.

If you think your alteration of the record won't be detected, think again! Finding alterations in medical records — just like DNA matching — is high-tech business, and most plaintiff's lawyers can hire document sleuths to ferret out even subtle changes. They use infrared and ultraviolet microscopic techniques to look for composition and age of the ink, slant of the script, depression made in the paper by the writing instrument, whether the entries were made at different times, etc.

Actually, more common than changes made to deceive, but often just as damaging to the defendant physician's case, are late entries, additions and "panic" notes made to augment sketchy or sparse progress notes. Examples of suspicious chart entries include:

- use of liquid white-out
- correction fluid
- late entries
- squeezed-in notes
- write-overs
- cross-outs where the original word cannot be read
- "panic" notes, i.e., lengthy additions made after a lawsuit is anticipated or imminent.

Establish and implement a formal, in-office patient records audit pol-

icy. Review at regular intervals a random sample of charts for:

- **Accuracy:** inconsistencies; failure to initial or follow-up on test results; typos; spelling errors; incorrect dates.
- **Objectivity:** subjective or personal remarks about a patient not clearly supported by documented facts; clinical findings, conclusions or diagnoses not supported by objective data; subjective (esp. derogatory) comments about care provided by other physicians or caregivers.
- **Legibility:** illegible handwritten entries; obliterations or changes made in the record inconsistent with appropriate methods for making corrections.
- **Timeliness:** entries made more than 72-hours following patient encounter; failure to file patient data reports or to communicate with referring or consultant physicians in timely fashion.
- **Comprehensiveness:** identify any conclusions charted without documenting the rationale for intermediate clinical steps; identify critical decision points where reasons for making those decisions are not clearly evident; "comprehensive" does not mean lengthy or verbose.
- **Alterations:** missing pages or other patient data erasures.

Conclusion

Incorporating risk-management strategies into your daily office and hospital practice pays dividends, not only in reducing medical liability exposure, but ultimately in providing better care to your patients, a more efficient, organized office operation, and less chance for important details to "fall through the cracks". As medical practice continues to become more complex, the physician's at-

tention is repeatedly distracted from providing quality patient care to complying with externally-imposed guidelines and regulations, processing mountains of burdensome paperwork, and trying to maintain solvency and fair profitability in the face of mounting practice costs and decreasing reimbursement for medical services provided.

Medical liability insurance carriers can usually provide you with practical risk avoidance strategies tailored to your own practice circumstances. Some will even perform an on-site evaluation at your office or clinic and in-service you and your staff on ways to make your practice more lawsuit-resistant.

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Mal-doctoring and Mal-practice: Doctoring Malpractice

by Norman M. Jensen, MD

Abstract

The risk of lawsuit continues a slow increase. Last year, nearly one of six doctors sustained a lawsuit. Among all doctors, risk varies considerably — men are sued three times more frequently than women physicians. Lawsuit risk is poorly related to technical quality of care and professional credentials. Although grateful, we do not understand why 98% of those patients who could win a medical malpractice lawsuit do not sue. Patient dissatisfaction and poor doctor/patient communication relate strongly to lawsuits. Good communication is pleasing to both physician and patient and correlates with superior medical care outcomes. Communications skills are critical to effective care of conscious humans, are teachable, are learnable, and can always be improved. Communications skills training is now available and should be widely offered by institutions responsible for continuing medical education. Physicians and patients can and should expect this type of training to be part of CME.

Introduction

A 1965 medical school graduate may never have heard of a case of medical malpractice — they seemed quite rare. A 1997 gradu-

ate hears that in her year of graduation, nearly one in six physicians (16%) insured with the largest medical malpractice insurer in the US were sued — the trend line continues slowly upward.¹ Although she takes solace in the observation that women physicians have been sued much less often than her male colleagues, she wonders what does such dramatic change mean?

Surely some of the increase in malpractice reflects other changes in American society. Haven't we have gone through quite a lot since the "happy days" of the 1950s? The social dust of change (jet

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propulsion, cold war, political assassinations, Watergate, Vietnam, civil rights, feminism, instant-worldwide news and information, NAFTA, and a World Economy) has not yet settled. We seem more cynical, impatient, self-centered, litigious, and less forgiving. We seem more distrusting of government, news media, schools, postal service, cable companies, family, and the opposite sex. We call for more law and order, while social authority generally seems weaker. There is road rage. Med-

ical practice is now mostly a corporate enterprise with its own special case of merger mania. This is the world-age of corporatism. We seem subjected to ever more management, accountability and paperwork. Is medicine then simply one of the many social institutions in upheaval, changing rapidly, heading toward some new-millennium stable form? Can we blame our loss of professionalism on social change alone? Can we think globally and act locally?

Defining Malpractice

Medical malpractice as a potentially valuable social policy has two aims, i.e., to provide fair compensation for persons harmed by substandard medical practices, and secondly, to serve as a deterrent for substandard practice. A successful suit depends upon a jury's judgement that a harmful adverse event (AE) resulted from substandard medical practice (SSP). How common are adverse events and substandard medical practices? The available data show considerable agreement. The landmark Harvard Medical Practice study found an AE in 3.7% (CI 3.2-4.2) of a random 1% sample of all hospital discharges in the state of New York for the year 1984, or an estimated total of 98,609 AEs for hospitalized New Yorkers in 1984.² One percent (CI 0.8-1.2) of hospital discharges had an AE associated with SSP. The study estimated 27,177 AEs associated with SSP in New York hospital discharges for 1984. A study of

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California hospital discharges for the year 1970 by the California Medical Society reported an AE rate of 4.6% — 0.8% of discharges had an AE associated with SSP.³ Medical adverse events are relatively common and approximately 1 in 4 is associated with sub-standard practice.

On the other hand, although we have less data, malpractice claims seem relatively uncommon. The same Harvard Medical Practice Study also carefully searched all malpractice claims in New York State for the year 1984 and linked 47 claims with their hospital discharge sample. Half (26) of the claims were associated with no adverse event and could therefore be considered groundless. Eight of the 47 claims were each associated with one of the 281 AEs with SSP. This yields an estimated claims rate of 1.5% (CI 0-3.2)⁴ suggesting first, that 98% of patients who could successfully sue do not do it, and second, that 50% of those who do sue do have insufficient legal grounds. How does this fit with physicians' perceptions of malpractice reality? A random sample of New York physicians in 1984 estimated their chances of being sued that year at 19.5% overall, 45% if involved in an AE that resulted in disability, and 60% if involved in an AE associated with SSP.⁵ These estimates were in fact greater than reality by factors of 3, 45 and 30 respectively. Malpractice seems surprisingly uncommon, less of a danger generally than we physicians believe. As a social deterrent then, perhaps it works, but is there a downside to unrealistic fear?

What may be driving physicians' fears and exaggerated estimates of risk? No doubt some of it is the intermittent reinforcement that physicians may lose up to 20+ work days in defending a malpractice suit, out-of-pocket legal expenses for ~6% of sued

doctors, and out-of-pocket payments to patients for ~2% of sued doctors (Lawthers 1992). Perhaps even more important is the personal pain and professional injury of malpractice action⁶ that can take on the quality of a "public degradation ceremony"⁷ and the tragic despoiling of sued doctors' attitudes toward practice (Shapiro 1989).

Reform Measures

If not because of their frequency, then because of the high cost of suits, we could possibly achieve easy consensus on the wisdom of taking all reasonable action to further reduce the risk. If so, what might help the most? Physicians and patients disagree on the answer to this question. Legal liability (tort) reform comes to

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physicians' minds first, and to our suing patients, priority is in reduction of medical error and substandard practice. Since individually we have less control over social and tort reform than personal and group practice reform, it seems wise to focus on practice reform. Practice reform readily takes on the objectives of reducing errors, reducing substandard practices, and because we physician-humans will never be error-free, we must

also earn greater forgiveness from our patients.

Errors in medical practice are painful for a physician to acknowledge. For a profession traditionally self-disciplined and proud of our science, we have surprisingly few published studies of medical error. Used well, errors are a powerful source of learning and self-correction. What do we learn from our errors? In a study of errors among 254 internal medicine residents at a prestigious medical center⁸, all respondents (45%) reported "a most serious" error, 90% associated with an adverse event and 31% associated with a patient death. Fifty-eight percent blamed the error on inexperience and fatigue. Most discussed the error with another person, 24% with the patient or patient's family, 54% with a supervising physician, and 88% with a non-supervising physician. Five percent discussed the error with no one, 13% intended to keep future errors to themselves, and 5% aimed to avoid similar patients in the future. Women residents were seven times more likely than men to aim for future error avoidance through constructive practice change, such as increased information seeking and vigilance. Time-pressured practice styles no doubt enhance risk for error. Automated systems of monitoring, reminding, and information retrieval offer potential error reduction. What could we learn from a statewide database of reported medical errors? NASA's Aviation Safety Reporting System may be a useful model; reports of aviation errors are encouraged by assurances of immunity from prosecution and anonymous recording of each report into a national database from which periodic studies and reports to the aviation community result. It is widely believed that aviation safety is significantly enhanced by this system of confession, forgive-

ness, and anonymous public reporting.

If the best way to reduce substandard medical practice is through continuing medical education (CME), we have a serious problem. Most CME continues to be what is now regarded as the least effective type, i.e., passively sitting through lectures with little or no analysis of participants' learning needs.⁹ Single or combined CME methods shown to result in improved medical practice and patient care outcomes are still uncommon, such as needs analysis, directed and/or case-based discussion groups, workshops, skills practice, printed and personal feedback, and outreach visits. Here then is a straightforward opportunity for our medical societies, malpractice insurance companies, and educational institutions to rather quickly and profoundly improve medical care and reduce malpractice. What would it take to make this happen?

Communication is Key

We have more than enough moral and professional grounds to enhance our efforts and effectiveness at quality improvement through reduction of medical error and substandard practice. Surely we would enjoy some reduction in malpractice claims despite the suggestion of our data that a proportional reduction would be unlikely (recall most malpractice claims were not associated with either substandard practice or an adverse event). What else may it take to reduce malpractice claims?

For many years, professional and public opinion has favored a strong relationship between physician-patient communication and medical malpractice. For example, two thirds of sued and non-sued physicians in Wisconsin believed improved physician-patient com-

munication is a "very effective" method of preventing malpractice claims.¹⁰ Among all physicians' "suggestions to reduce malpractice litigation" only tort reform held a higher position. Belief in the malpractice-provocative nature of poor doctor-patient communication is held also by health services researchers¹¹, patients¹², attorneys, and the State Medical Society of Wisconsin.

Although scientific study of doctor-patient communication is a relatively new field, there are already some very interesting findings in the literature. Some of the most interesting are the different work experiences of men and women physicians. Men physicians tend to conduct shorter visits with patients, do less preventive counseling, smile and nod less, and attend less to social talk and to patient affect.¹³ They are also three times as likely to be in a high-claims group despite statistical controls for specialty, percent time in practice, and number of patients seen per week.¹⁴ A multi-year study of malpractice claims in the state of Florida similarly showed that men physicians were three times as likely to be sued as women physicians¹⁵ — the gender difference was much weaker in the surgical specialties. Patients of men physicians have been reported to be less satisfied, and, not surprisingly, there is a strong relationship between patient satisfaction and malpractice claims. This doctor-gender difference is less significant in the surgical specialties for predicting malpractice claims.

An analysis of all malpractice claims for the State of Florida, physicians with any claims (unpaid, paid small, or paid large) in the baseline period of 1975-1980 were two to four times more likely to have claims during the follow-up period of 1980-1983, when compared to physicians without claims.¹⁶ Because this study and

others reveal considerable variability in malpractice claims among sub-groups of physicians, (a minority seem to get most of the suits) it raises an obvious question, do doctors who get sued practice medicine differently? A study of malpractice claims, patient attitudes and technical quality of care of Florida obstetricians revealed that the high-claims group was equivalent to the low-claims group in the technical quality of obstetric care.¹⁷ However, the high-claims obstetricians had the most dissatisfied patients who complained of feeling rushed, ignored and not receiving explanations for test results (Hickson 1994). A very recent study of 65 surgeons and 59 generalists, comparing communication behaviors of those with two or more malpractice claims with those with no claims, revealed severally potentially important differences in practice style.¹⁸ No-claims generalists spent more time in patient visits (18.3 vs. 15.0 minutes), did more orientation to the process of the visit (for example, "First I will examine you and then you will have some tests."), did more facilitation (for example, requesting patient opinion, checking understanding, and comments like, "Go on, tell me more."), received more information on therapy from their patients, laughed more, and used more humor. For the surgeons most differences trended in the same direction, but did not reach statistical significance. Several additional published studies come to remarkably similar conclusions about what suing patients find lacking in their relationship with their sued doctor.

How then can we increase the likelihood that when we make an error, our patient will forgive us rather than sue us? Surely, enhancing patient satisfaction with medical care is the common denominator. Many factors deter-

mine patient satisfaction, but none of them is so powerful as communication between doctor and patient. Most of us possess a wide variety of skills and styles that we use for different circumstances and different people. Physicians, as generally quick-learners, can rather well buff and polish their skills and even develop new ones.

Two recent clinical trials of continuing medical education aiming to improve physicians' communications skills show encouraging results. Roter¹⁹ reports a randomized controlled trial of eight hours of training for generalist physicians. Physicians who completed training used more of the targeted problem-defining and emotion-handling skills without lengthening the visit time. They also detected more psychosocial problems and had patients who reported less emotional distress for as long as six months later. Levinson and Roter²⁰ report a randomized controlled trial of a 4.5-hour workshop for generalist physicians and compared this to a non-randomized 2.5-day course with similar learning objectives. The 4.5-hour workshop produced no measurable differences between participants and controls as measured from audiotapes of actual patient care in their offices. The 2.5-day course participants showed significant gains in physicians' intended learning skills one month after training, including open-ended questions (a basic and very important skill), psychosocial talk, biomedical information-giving, and positive talk. The patients of doctors participating in the 2.5-day course also showed more biomedical information-giving and psychosocial talk. Although patient satisfaction was not examined in these studies, one could take a strong inference it would be higher and that these patients would be more likely to forgive their doctor if an error occurred.

Conclusion

From our scientific medical literature, a pattern of information is beginning to emerge that suggests both patient satisfaction and malpractice claims are strongly related to the length of doctor-patient encounters and doctors' communication behaviors. In addition, higher patient satisfaction has been linked to lower health plan disenrollment and improved health outcomes such as blood pressure and blood sugar control. While our medical science and technology have been developing at an awesome pace, our professional art may have atrophied. Use it or lose it. Is it time yet to get serious together about rehabilitating the art of medicine?

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A Review of the Florida and Virginia Damaged Neonate Funds: A Role Model for Wisconsin?

by Charles Schauberger, MD, La Crosse

Introduction

Most of us would say that being sued for medical malpractice is one of the least enjoyable experiences of our lives. Furthermore, the present legal system leaves much to be desired. A malpractice suit may include higher malpractice insurance premiums in the future. The risk of further litigation, damaged reputations, and shattered self-esteem cause many physicians to consider early retirement or restrictions on certain key areas of practice, such as obstetrics. Malpractice suits involving birth-related neurologically-impaired infants particularly haunt obstetricians, family physicians and midwives. Malpractice cases involving such allegations lead to the largest payments, the longest time to resolution and the greatest risks.

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A review of data from the Wisconsin Patients Compensation Fund (PCF) shows at least 15 cases with payments exceeding \$1,000,000 per case in the last seven years.¹

The present tort system has a number of serious deficiencies:

- Some deserving people don't receive compensation and some receive excessively large awards. This relates to the arguably low percentage of possibly-injured parties who file claims, the relatively high percentage of plaintiffs that lose at trial, and the high minimum case value necessary before a plaintiff attorney will consider handling a case.
- Many don't receive money when it would really be needed. It takes a particularly long time for these cases to be filed and to work themselves through the legal system, especially with appeals. A child, injured at birth, may not receive compensation until he/she reaches the teenage years.
- A large amount of the money goes to lawyers. Contingency fees and expenses may run up to 40% of awards.

- Money isn't always directed to the care of the individual. Consider a multimillion dollar award, which is supposed to provide compensation for economic damages until the age of 65 for an infant that dies soon after trial. This may leave the parents millionaires.
- On the other hand, the money may run out!

Tort Experiments Around the Country

Even though the present system isn't in crisis, there is still room for improvement. Several states suffered serious malpractice crises approximately 10 years ago that led to experiments in attempting to remove suits involving neurologically-impaired infants from the tort system, primarily to solve a liability crisis that threatened health care in their states. These experiments have matured and it would be appropriate to review their systems and to begin a dialogue to consider if such a system might be adapted to Wisconsin medicine.

Virginia

Though an absolute cap on medical malpractice damages of

\$750,000 was enacted in Virginia by 1986, it was still inadequate to prevent a significant increase in the cost of liability premiums and a lack of liability coverage for physicians practicing obstetrics. The category of neurologically-impaired newborns was the largest category, both in the frequency of claims (31% of obstetrical claims) and the average indemnity (\$390,834 for "brain damage" vs. \$140,606 for all claims).² Special treatment was felt to be necessary to handle these cases.

Virginia's BirthRelated Neurological Injury Compensation Act was passed in 1987 and went into effect on January 1, 1988. It removes all birthrelated neurological injury cases from the tort system and provides compensation for neurologically-impaired children who have suffered catastrophic injuries.

Claims are evaluated by a commission with input from a three physician panel to determine eligibility. The definition is quite narrow and requires a demonstration of oxygen deprivation or mechanical injury during labor and delivery or resuscitation that resulted in impairment. The infant must be term (greater than 2500 g at birth) and suffer permanent motor and/or developmentally or cognitive disabilities. "Net economic loss" payments are made for the child's care. This coverage includes expenses for actual medical and hospital care, rehabilitative services, residential and custodial services, special equipment, and related travel. Lost wages, based on workers' compensation-style formulas begin at age 18 and continue through age 65. Reasonable attorney's fees are paid for processing the claim.

Initially, physicians electing to participate paid annual \$5000 participation fees. Hospitals wishing to participate are assessed \$50 per

live birth, up to a maximum fee of \$150,000. All nonparticipating physicians were required to pay \$250 per year. As a safety net, the law provides annual assessments on premiums of liability insurance carriers in Virginia in the event the fund is actuarially unsound.

As of March 1998, 50 claims have been filed with 34 claims accepted for payment. The program director, Elinor Pyles, indicates they are concerned about the low number of claims filed, believing it to be due to lack of knowledge that the fund is available.

Because the number of claims has been small and the program is financially sound, the annual assessment has decreased depending on the number of years of involvement in the program. A physician who has participated for seven years pays a \$500 yearly assessment. The \$250 assessment to all nonparticipating physicians has been waived due to Fund surpluses.

Obstetrician participation has been high. In 1990, 75% of Virginia obstetricians participated. Ms. Pyles indicates between 60% and 75% of all obstetricians were covered by the fund over the years. Amendments to the law require liability carriers to grant premium discounts to participants. In 1991, the state waived the \$5000 participation fee of obstetrics and family practice residents in training.

The success of the Virginia program hasn't been reviewed in the literature. In 1997, the Virginia Legislature authorized a study of strengths and weaknesses of the program. The report of the study conducted by the Center for Public Policy at the College of William and Mary recommended:

1. Expansion of the program through increased reporting of cases by health professionals and patients.
2. Broader physician involvement

by incentives, not by making the program mandatory.

3. Avoidance of broadening the definition of eligibility, such as lowering the birth weight criteria below 2500 g or including other causes of neurological deficits.³

Florida

In 1986, a task force was formed to evaluate Florida's insurance and tort systems for the purpose of recommending systemic changes to the legislature. At the time, the crisis in liability coverage in southern Florida counties caused many physicians to discontinue providing obstetrical services. A recommendation for a nofault plan for compensation of catastrophic birthrelated neurological injuries based on the similar program in Virginia was enacted in 1989.

Comparisons between the Virginia and Florida systems reveal great similarities. The definition of birthrelated injury is very similar in both states. Neither state reports payments to the National Practitioner Data Bank based on the "no-fault" provisions of the Funds. Funding was similar in both states. The assessments made to Florida physicians is also \$5000. Participating midwives pay \$2500. Nonparticipating physicians are assessed \$250 and each hospital pays \$50 per live birth. Florida's insurance commissioner may increase assessments if necessary and liability insurance providers may be forced to provide an assessment should the fund become actuarially unsound. The Florida plan (Neurologic Injury Association Fund—NICA) has also purchased a reinsurance plan.

The Florida plan provides compensation only after all collateral sources have provided assistance (insurance, state and federal programs). Expenses are managed in a similar fashion to a managed

care program. Compensation to parents of a single lump sum of up to \$100,000 is provided if approved by the judge evaluating the case. Florida's plan has gained wide acceptance. Over 700 (80%) of Florida obstetrician/gynecologists and almost 100 midwives participate, though there were no family physicians in the fund.⁴ Several hospitals pay for physician enrollment and some require participation prior to granting of privileges.

Much more information is available on the outcome of the Florida NICA. Through October 24, 1997, 241 claims have been filed. Eighty-five were accepted and paid; 135 were ruled noncompensable by hearing officers and several are on appeal. Of the denials, a large number were felt to be unrelated to labor and delivery or substantial mental/physical impairment was not demonstrated. A smaller number were rejected for low birthweight or because the physician was a nonparticipant.

A large majority of the cases involve cerebral palsy.⁴ Stalnaker, et al, reviewed the cases and demonstrated 100% had persistent non-reassuring fetal heart rate monitor tracings. Five-minute Apgar scores were < 6 in 91% and 10 minute Apgar scores of < 6 occurred in 86%. Only 12.5% appeared to include a breach of the standard of care or clear negligence. They concluded that most of the cases would not have been eligible in a traditional tortbased system, because the standard of care was not breached and the injuries could not have been prevented.⁴

The success of the program is under much debate. Sloan, et al, reviewed the overall effect of the compensation system on the cost of liability in Florida, comparing statistics from prior to 1989 to the

first three year experience (1989–1991). They demonstrated that there was a fall in tort claims of 16%–32% but if the nofault claims were added to the tort claims, there was an overall rise of 11%–38%. Why the range? Furthermore their evaluation suggests that the total combined payments did not decline, but a larger share went to patients. The total payments to lawyers in the Fund system were less than 3% of total awards, whereas lawyers received 39% of total payments under the tort system. Similarly, the system has essentially limited pain and suffering awards to \$100,000, almost always granted.⁵

Sloan, et al, reviewed the status of the awards and concluded that families of neurologically-impaired infants were only compensated for 1/2 to 2/3 of their total loss, including medical expenses, lost wages, nonmarket losses.⁶ Horwitz and Brennan point out that though the cost differences may not be that much different, NICA negotiates medical services and though NICA compensated patients receive less money, they may receive comparable care.

Administrative costs of the program have been evaluated in the first year of the fund. The majority (75%) of patients are represented by attorneys and NICA employs general counsel. The Fund has made cost estimates of \$18,000 per claim in 1989. No firm data exists for subsequent years.⁷

Fiduciary status of the NICA is of some concern. In 1992, the Fund was cash rich with resources of over \$90 million. Long-term stability is less certain. Accumulating accrual deficits based on expected claims would suggest it might be in trouble. However, the expected claims and payouts have been lower than predicted.⁷

Court challenges to the present systems have been limited. The

\$250 assessment to nonparticipating physicians had been reaffirmed in the Virginia Supreme Court. However it was administratively set aside due to the strong fiscal status of the Virginia Fund.

Florida requires physicians and hospitals to provide a pamphlet to all pregnant patients indicating their involvement in the program such that the patient has the opportunity to change care providers, if they choose. Failure to notify the patient voids the NICA coverage. Jeff Scott, JD, counsel for the Florida Medical Association indicates that some reforms are presently in their state legislature that would aid in defining admissibility of evidence from the NICA review in court. Also broadening the definition to include infants weighing less than 2500 g is being considered.⁸

New York

New York considered a neurologically-injured compensation plan in 1993. One bill considered the development of a scoring system to determine eligibility. Another bill covered all infants with any sickness, disease or injury that may have been the result of negligence. All eligible cases were to have been reviewed by a commission overseeing professional conduct, potentially for the purpose of disciplining culpable physicians, even to the point of loss of licensure.⁹ A representative of the Medical Society of New York indicated that plaintiff's attorneys and others effectively blocked the legislation, citing concerns that the Fund limited individuals from receiving just compensation.

Summary

The measure of success of these programs is difficult. The likelihood that cases have been kept out of court may make the programs seem successful. If patients who were damaged are given money for care that might

have otherwise been unavailable, we should be satisfied with these systems. However it would appear that too few deserving patients are compensated.

No fault relates to the fact that blame is not assessed and physicians do not bear the financial responsibilities. No fault does not refer to all cause. The definition of birthrelated neurologically impaired is necessarily very narrowly defined to avoid bankrupting the present system. The programs of both states require demonstration of oxygen deprivation or mechanical injury as the cause of the infant's neurological impairment.¹⁰ A lot of children with other serious neurological impairment do not receive assistance. However, Stalnaker et al conclude that a breach of the standard of care or obvious negligence is present in only 12.5% of the claims in Florida.⁴ Perhaps other ways to improve state or federal assistance for all neurologically-impaired infants needs to be considered.

The political success of these programs is easier to assess. Their persistence and high participation suggests acceptance and some measure of success. Both programs seem to have put out "liability fires" that were burning out of control, just as the Wisconsin Patients Compensation Fund (PCF) was developed at a time of crisis in our state. The fact that they haven't spawned similar programs in other states suggests this success may be more modest. They do serve as interesting experiments that might serve as models for the future.

Consideration of a similar system in Wisconsin, might draw upon the similarities of these programs to Wisconsin's Worker's Compensation Fund and program. The similarities to the present PCF are also noted. The PCF might serve as an appropriate frame work upon which an alternative system

might be developed, utilizing our knowledge of the strengths and weaknesses of the Florida and Virginia systems. Whether there is adequate interest to consider such a program is uncertain. We must ask ourselves whether to consider such a program at this time or wait until the next crisis requires consideration of this option.

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Director of State Courts Medical Mediation Panels:
**Status Report on the Medical Mediation
Panel System in Wisconsin**
January 1, 1997 – December 31, 1997

Section 655.68(4)(c), Stats., requires the Administrator of the Medical Mediation Panels to submit a report on the operation of the mediation system to the presiding officer of each house of the legislature on or before March 1 annually. This report has been prepared and submitted pursuant to that directive.

Statutory Background

The Medical Mediation Panels, codified in Chapter 655 of the Wisconsin Statutes, were created in 1986. With limited exceptions, Chapter 655 requires all parties to a medical malpractice action to participate in informal, nonbinding mediation either prior to or immediately after the commencement of a circuit court action. The mediation system was established to provide "an informal, inexpensive and expedient means for resolving disputes without litigation." Sec. 655.42(1). The system is funded entirely by assessments against health care providers. The statutory format contains the following features:

1. The mediation is nonbinding.
2. The mediation is mandatory. The claimant (patient) must file a request for mediation either prior to the commencement of a circuit court action or within 15 days after the

commencement of a court action. Subsequent mediation proceedings, however, may be waived by the parties.

3. The mediation must take place within 90 days after the request for mediation is filed unless all parties stipulate to an extension.
4. The mediation is informal. No physical examinations or productions of records may be ordered, no witnesses may be subpoenaed, no oaths may be administered and no stenographic record may be made of the proceedings. No statement or expression of opinion made in the course of a mediation session is admissible in the court action. Formal discovery (e.g., depositions) is prohibited during the mediation period.
5. The mediation is conducted by a panel consisting of an attorney, a health care provider and a public member.

Mediation Procedure

Pursuant to the guidelines promulgated by the administrator, the parties are required to submit written statements of the case in advance of the mediation session. The statements explain when and by whom the patient was being

treated and the nature of the treatment. Additionally, the statements discuss the alleged propriety or impropriety of the treatment and the nature and extent of the patient's damages. Finally, the statements indicate the amount, if any, for which the parties would be willing to settle the matter at that stage of the proceedings.

The parties are also required to provide the administrator and all other parties with copies of the relevant medical records. The statements and medical records are sent to the panel of mediators by the administrator two weeks prior to the mediation session.

On the day of the session, the mediators convene one-half hour before the parties arrive and preliminarily discuss the issues raised in the statements of the case. Upon the arrival of the parties, the claimant, through his or her attorney if represented by counsel, supplements the statement with a brief oral presentation of the case. The respondent follows with his or her oral presentation. The mediators often ask questions of the parties (who are required to attend the session unless excused by the administrator for good cause) or their counsel during the presentations.

After the oral presentations the mediators meet outside the presence of the parties to discuss the merits of the case. The mediators then meet with the claimant and his or her attorney outside the

presence of the respondent, followed by a meeting with the respondent and his or her attorney outside the presence of the claimant. During these *ex parte* meetings, which are designed to induce more openness and candor than might otherwise exist, the mediators discuss the strengths and weaknesses of the case, disclose their recommended disposition or settlement figure and ascertain the "bottom-line" settlement positions of the parties. The mediators continue shuttling back and forth between the parties for the *ex parte* discussions until the matter is resolved or until the parties reach an impasse, at which time the session is concluded and the mediators provide the parties with their objective evaluation of the case. The purpose and goals of the mediation panels vary with the complexity and severity of each case. The panels are designed to fully resolve the less complex, relatively low damage cases. An examination of the requests for mediation filed prior to the commencement of a court action where the claimant was willing to resolve the matter for \$25,000 or less indicates that the mediation panels appear to be accomplishing that objective. Of those cases, 24% have been settled at or shortly after and as a result of the mediation process. Forty-nine percent have not been "settled" (in terms of money changing hands), but have not subsequently been filed in circuit court and the statute of limitations has expired. Finally, in 11% of those cases, the claimant has commenced a court action subsequent to the mediation session but the parties have nevertheless indicated that the session served a constructive purpose.

An examination of all requests for mediation filed prior to the commencement of a court action, regardless of the amount in

controversy, reveals equally encouraging statistics. Nine percent of all the cases involving requests filed prior to the commencement of a court action are settled at or shortly after and as a result of the mediation session. Forty-three percent of those requests are not "settled" but have not subsequently been filed in circuit court and the statute of limitations has now expired. Finally, in 19% of those cases, a court action was initiated subsequent to the mediation session but the parties have indicated that the session nevertheless served a constructive purpose.

For the majority of cases, mediation under Chapter 655 serves as an "early neutral evaluation," i.e., an objective assessment of the strengths and weaknesses of the case by an impartial panel early in the proceedings. Early neutral evaluation is designed to reduce litigation costs by identifying claims without merit as early as possible in the proceedings and by expediting the resolution of those claims that do have merit.

The requests which are filed after the commencement of a court action tend to involve the more complex, potentially higher damage claims and they tend to be cases where the plaintiff has already had the matter reviewed by a medical expert. Because of the complexity of those cases and the prohibition against discovery prior to the mediation, the defendants are usually unable to adequately evaluate the case prior to the mediation session. One would therefore expect that mediation under the present format would be less effective for those cases where the request is filed after the commencement of a court action. An analysis of the cases that have proceeded through mediation confirms that expectation.

Of the requests for mediation that are filed in conjunction with

the commencement of a court action, only 3.2% are settled at or shortly after and as a result of the mediation session. In 39% of those cases, the parties indicated that, even though the case was not settled, mediation served a constructive purpose. Finally, in 57.8% of the cases where the request for mediation was filed in conjunction with the commencement of a court action, the parties have indicated that mediation did not serve any purpose.

After each mediation session, questionnaires are sent to the participants. Among other things, the participants are asked to identify problems with the present mediation format. Three flaws are commonly identified:

- Section 655.26 requires that all settlements be reported to the Medical Examining Board so that a determination can be made as to whether disciplinary action should be taken. In several instances the automatic reporting requirement has been the sole impediment to the settlement of a relatively low damage claim. The physicians involved in those cases have expressed concern that even a nominal settlement might subject them to disciplinary action. This flaw could be remedied by legislatively exempting relatively low-level settlements (e.g., \$10,000 or less) from the automatic reporting requirements.
- Section 655.445(3) prohibits discovery (depositions, interrogatories, etc.) until after the expiration of the mediation period. The vast majority of medical malpractice cases cannot be adequately evaluated and, therefore, successfully mediated until the parties have completed at least some preliminary discovery. This

flaw could be remedied by requiring mediation but allowing the parties to determine in each case the time at which the mediation should occur.

- The present format relies exclusively on the good faith efforts of the parties. There are no disincentives for failing to abide by the recommendation of the mediators. This flaw could be remedied by legislatively imposing disincentives for parties that fail to abide by the recommendations of the mediators and subsequently fail to improve on those recommendations.

The present mediation format has produced positive results for low damage cases and for cases submitted prior to the commencement of a court action. The problems mentioned, however, are impediments to mediating the more complex, higher damage cases.

Statistical Analysis

After experiencing a slight increase in filings in 1995, the Medical Mediation Panels experienced a significant decrease (25%) in filings in 1996. The number of claims filed in 1996 (244) was the lowest since 1979 (see Table 1).

Reprinted with permission from the Wisconsin Medical Mediation Panels.

Table 1

Year	Cases Filed
1981*	307
1982*	413
1983*	376
1984*	441
1985*	454
1986	**
1987	398
1988	353
1989	339
1990	348
1991	338
1992	313
1993	276
1994	292
1995	324
1996	244
1997	240

* The statistics for these years reflect the number of cases filed with the Patients Compensation Panels (the predecessor the Medical Mediation Panels).

** The Patients Compensation Panels were abolished on June 12, 1986. The medical Mediation Panels did not become operational until September 1, 1986. During the interim, parties could proceed directly to circuit court. Accordingly, no filing statistics are available for 1986.

Statistical Summary

- I. Cases where request is filed prior to the commencement of a court action and claimant is seeking \$25,000 or less:
 - A. Settled at or shortly after session 24%
 - B. Not settled but not filed in circuit court—statute of limitations has expired 49%
 - C. Filed in circuit court but mediation served a constructive purpose 11%
 - D. Filed in circuit court, mediation served no purpose 16%
- II. Cases submitted prior to the commencement of a court action:
 - A. Settled at or short after session 9%
 - B. Not settled but not filed in circuit court—statute of limitations has expired 43%
 - C. Filed in circuit court but mediation served a constructive purpose 19%
 - D. Filed in circuit court, mediation served no purpose 29%
- III. Cases submitted in conjunction with the commencement of a court action:
 - A. Settled at or shortly after mediation 3.2%
 - B. Mediation served a constructive purpose 39%
 - C. Mediation served no purpose 57.8%

Risky Business

by Marc Kennedy, Special to WMJ

Risk management has become an accepted cost of doing business by many large health care entities, hospitals and medical liability insurance companies. It has also become a booming business for an array of specialists, trouble-shooters and consultants who focus on identifying and attempting to rectify potential problems involving documentation, patient communication and confidentiality issues, among others.

Risk management remains trendy for some in the medical industry. It's become a handy buzzword that gets tossed around board meetings amidst the Caesar salad; a sound-bite that emerges in news conferences as frequently as the term "breakthrough;" or a phrase included in literature on tables at health fairs along with the free pencils and refrigerator magnets.

Risk management is a discipline whose value is often considered difficult to quantify. It is sometimes dismissed as "fluff" and occasionally regarded skeptically as a field that focuses on monitoring parameters within a health care facility that are among the easiest to measure, as opposed to pinning down the real reasons behind medical liability claims that might be more difficult to identify and to mitigate.

It is not easy to correlate the direct cause and effect relationship between risk management interventions and decreased medical liability claims or patient complaints — how can you say for

certain that instituting Practice A or revamping Procedure B has eliminated X number of liability claims in a given five-year period? How do you know that your actions actually have prevented something from occurring? As a discipline, risk management is still in its relative infancy; as health care facilities mature and collect more data, perhaps the quantifiable tendencies will emerge to justify certain practices, and maybe invalidate others.

*It is not easy to
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or patient
complaints...*

While empirical evidence concerning claims reduction is hard to come by in the realm of risk management, for those who practice and promote it, there are intrinsic benefits that transcend the need for statistical validation.

These include improving patient care and education, streamlining clinic operations, eliminating redundant practices, thereby saving time, effort and expense, and enhancing communication among medical staff and ancillary departments such as pharmacy, radiology and laboratories.

For the latter reasons in particular, some clinicians believe strongly in instituting standard risk management practices and regularly auditing their capabilities and progress.

Prevention Over Cure

Kulwant S. Dhaliwal, MD, of the Allergy Clinic of Kenosha, appreciates the attention risk manager Jan Haedt of PIC Wisconsin has given his practice.

"Jan Haedt came and did an office practice assessment to see what we were doing right, and on what we could improve," said Dhaliwal, an allergic pulmonology specialist. "Then, she called us to see how we had followed up on her recommendations, then came back a second time. She was pleased that we had a policy manual, outlining things such as how staff should deal with patients, various job descriptions, not giving medical advice over the phone, those types of things."

Dhaliwal added that Haedt helped update the clinic's consent forms, and improve their system of logging information in the patients' records to ensure that appropriate action is taken after each test.

"Jan also talked with the whole staff about sexual harassment," he said, "and how this could lead to potential problems if not addressed appropriately.

"We felt good that she came in, not just that she found that we were up-to-date in many areas, but also because she helped us go ahead with changes we already had in mind, such as improving our consent forms. She helped us draft the wording for the new ones.

"It was an excellent service she provided," said Dhaliwal, adding that he believes in the philosophy behind risk management assessments, because "prevention is better than cure."

Another satisfied customer is Linda Gicius, office manager of Cardiology Associates of Green Bay, who had worked with another PIC-Wisconsin risk manager, Patty Pate.

"She did an excellent job of keeping us abreast and giving us some suggestions," said Gicius. "One of the things we hadn't done recently is update our patient education material and forms. She also helped us with charting and documentation; we're now more consistent with medication logging, chart corrections, allergy stickers; also specifically where we can and cannot use doctor stamps, and when we need an actual signature."

Now, Gicius and her staff routinely audit medical records to assure that procedures are being followed properly.

"We look at dictation, level of service charges to see if they are correct," she said, "as well as consultations, referral letters, progress sheets, etc. We pull three charts at random from each doctor every quarter. If there is a problem, the chart goes back to the doctor's desk, then we meet with primary staff to make sure they are following the right protocol."

Such errors have been minor, Gicius said, in part due to the documentation system they installed

designed to promote accurate record-keeping, particularly to ensure examinations, tests and follow-up are properly recorded and completed.

"We are currently doing some remodeling to our office, so our reception area will have an enclosure, making it more private," she said, referring to conversations in person or over the telephone concerning patients. "We also do a yearly OSHA review; last year it was about chemicals. These are mandatory for staff. We also educate all new employees on this as well as for blood-borne pathogens."

Gicius added that the clinic has developed a checklist to ensure that patients and their families receive all the appropriate personal attention they need prior to a procedure, as well as written information to help them sufficiently understand the nature of the operation as well as its risks and benefits.

"The checklist helps us verify that all the appropriate educational and information steps have happened," she said, keeping the patient in the loop as well as preventing any steps from falling through the cracks.

"I think it's true that everyone is benefiting from it, not just patients, but staff members, too," Gicius said when considering the value of the risk management procedures the clinic has embraced, adding that other must think so as well.

"We're always getting a reduction on our medical liability insurance premium every year, so we must be doing something right."

Education the Answer to Limiting Liability

Some physicians, however, are less enamored with risk management procedures than as indicated above. To them, it is not so much the practices health care providers are instituting as it is the lack of evidence that they actually work.

Physician or Senior Physician

The University of Wisconsin - Milwaukee, Norris Health Center, has a half-time opening for a Physician or Senior Physician in ambulatory care. Anticipated starting date is September 1, 1998. The qualified candidate must have a medical degree from an accredited institution. In addition, residency and board certification in family practice, internal medicine or comparable specialty affording broad-based ambulatory care experience is required. State of Wisconsin medical license is also required. Prefer candidate with a minimum of 3 years experience. Actual salary negotiable and commensurate with qualifications. Excellent fringe benefits, including vacation and sick leave benefits. The Norris Health Center operates 8:00 a.m. to 4:45 p.m., Monday through Friday. For more information call Barbara Moser, M.D., Medical Director, (414) 229-5389. Send resume and letter of application to Norris Health Center, University of Wisconsin-Milwaukee, Attn: Alan Carr, P.O. Box 413, Milwaukee, WI 53201. To be considered, application must be postmarked by June 30, 1998.



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The names of those nominees and applicants who have not requested that their identities be withheld and the names of all finalists will be released upon request.

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Continued on p. 37

"It Could Never Happen to Me..."

by Marc Kennedy, Special to WMJ

"The first reaction is disbelief. That it can't be happening to me," said Charles Schauburger, MD, an obstetrician/gynecologist, at Gunderson Lutheran Medical Center in La Crosse. "Denial is one of the first emotions. Thinking back on my case, there were some similarities between being sued and developing cancer. You don't want to believe it. You're thinking 'I'm too young; I'm in the prime of my career; I've been careful. I know I didn't do anything wrong,'" Charles Schauburger, MD.

"Then, you recognize that it isn't a bad dream, that you really are being sued, and you have to start the process of learning an entirely new area in which you have little or no experience."

Schauburger was sued in 1992. After two weeks of trial, the jury took 10 minutes to acquit him of any negligence. But the shock of being named in a medical liability case and the stress of going through the entire process from discovery to deposition to preparation for trial and conclusion of the case changed the way he views medical practice and, in some instances, how he practices medicine. The ordeal also made him an advocate for physicians who are surprised and shaken when named in a lawsuit, just as he was. Schauburger became chair of the SMS Risk Management and Liability Commission and volunteers for the Physician Support Program, which counsels physicians who find they suddenly facing a lawsuit.

"Most physicians are like me," said Schauburger. "They never think it is possible that one of their patients might sue them."

But it happens all the time; in Wisconsin an average of more than 300 times annually, according to statistics kept at the state Medical Mediation Panel. However, the incidence of liability cases has been dropping slowly over the last few years, according to Randy Sproule, administrator for the Mediation Panel, a branch of the state Supreme Court.

"The first reaction is disbelief... You're thinking 'I'm too young; I'm in the prime of my career; I've been careful. I know I didn't do anything wrong.'"

Charles Schauburger, MD

"A high of 454 claims cases was filed for mediation in 1985," explained Sproule. "Last year, it was 240. The only blip on the screen was in 1995 when there were 324 cases. This was just before Wisconsin Act 10 was enacted by the legislature, which limited the non-economic damages — pain and suffering — to \$350,000. Otherwise, the number

has been slowly dropping, which is consistent from what I've read of national statistics on claims filed."

Many plaintiff attorneys would say that this ceiling limits the number of cases they will take, said Sproule, but he believes that it is the overall cost of conducting a trial — for both the plaintiff and defense — that has helped decrease the number of claims filed. The bad news for physicians is that of all the claims filed, 75% end up in court, he said. The good news is that in 75% of court cases, the verdict is for the defendant.

"This is one reason I think that medical malpractice case numbers are going down," Sproule said. "These cases are very expensive, both to prosecute and defend. Attorneys are flying all over the country to meet with medical experts and take depositions. This is causing the plaintiff attorneys who work on contingency, and get nothing if they lose, to screen cases more carefully than 12 or 13 years ago. If you are going to have to put \$75,000 and two or three years of your life into a case, you are not going to take it unless you are pretty sure you are going to win."

Sproule added that anecdotally he believes clinics, hospitals and physicians have helped lower liability cases by paying more attention to risk management and insurers are vigorously fighting spurious claims.

"Of the 311 cases that went to trial between 1989–1996, 230 were defense verdicts, with no negligence, about 74%," said Sproule. "Plaintiffs won 81 cases. Again, this is pretty consistent nationally. Often the perception on



Charles Schaubberger, MD

the street is that any med-mal case is going to mean big money for the plaintiff. This probably comes from huge jury awards that make the newspaper, as though insurance companies are giving away money right and left. But in reality, they don't — they defend vigorously."

Still, there are more than 200 medical liability cases filed with Sproule's office annually and most physicians still believe that it only happens to someone else.

Out of the Blue

It is difficult to identify the patient or clinic visit that ends up in litigation, according to Schaubberger.

"You learn you can't predict which case will come back to bite you," he said. "You find that it isn't a case in which you think you messed something up, or that there was a patient misunderstanding. More likely, it will be the incident that did not raise any red flags that will suddenly appear in a legal document in the mail.

"It will be the patient who came in to see you one time, then went to see someone else; someone you barely recall seeing," said Schaubberger. "Then you find that they ended up having an ectopic pregnancy or some other negative result and you find yourself preparing to go to court. It's the one that comes out of the blue that blows you away."

Once the trial began, the first thing Schaubberger learned is that physicians have to get used to someone else being in control and calling the shots.

"You learn quickly that the courtroom is not the same as the operating room," he explained. "In the operating room, I'm in charge. But in the courtroom, you are pretty much like a duck out of water. That's why it is very important to have a good lawyer."

Once a physician gets involved in preparing for his or her case, it is a rapid learning curve.

"You learn what a deposition is," said Schaubberger, referring to the testimony a defendant provides prior to going to trial. "You look at the medical records, searching for any errors you might have made, and you start evaluating the strength of the plaintiff's case."

Physicians need to alter their mode of thinking when confronting the necessities of preparing for a court case, he added. While scientists, researchers and clinicians rely on empirical information, lawyers seek to gain any advantages for their client within scope of the law. Such legal maneuvering may mean that certain evidence may not be admissible.

"As doctors, we're used to randomized clinical trials," Schaubberger said. "In the courtroom, it's not so much the truth as it is who can build the most compelling case."

Even if you are certain that you did nothing wrong, the time spent preparing for a court case and in court is emotional, he added.

"Throughout the proceedings, you have a higher degree of self-doubt. Why do I feel guilty even though I didn't do anything wrong? Did I screw up? Did I cause these problems? Am I going to win the case? Am I going to lose?"

Even though he was going through a roller coaster of emotions, Schaubberger knew he had to keep focused on the issues at hand while preparing for the case as well as during it. He kept notes on key aspects and

impressions of his case, and relies on them now while counseling colleagues who now find themselves in similar legal straits.

"During the discovery phase and in the courtroom, I learned how the game was played," explained Schaubberger. "I've outlined them as 12 suggestions for doctors to keep in mind when being sued."

12 Suggestions

- No one cares as much about your case as you do.
- Make sure your attorney is the best money can buy. Put him or her in charge; challenge, but don't over-rule his/her approach. The attorney knows how to manage case better than you do.
- A doctor's responsibility is to educate the lawyer on the medical aspects involved in case. Even if you have a good lawyer, don't assume he/she knows medicine as well as he/she knows the law.
- A deposition is easier than a board exam. A physician can outlast an attorney any day. "An obstetrician has more stamina than an attorney," said Schaubberger. "We can drink more coffee and can hold our bladders longer."
- Don't volunteer information. Don't teach the opposition.
- If you don't understand, ask about any legal proceeding. Remember that the courtroom is not an operating room. You are a guest, not in charge.
- Don't underestimate the plaintiff's attorney.
- Don't argue with the plaintiff's attorney or avoid giving answers. Be honest. It could hurt your credibility with the jury later on if you do not answer questions truthfully.
- Accept support of colleagues, friends and patients. "I didn't want anyone there, or at the

"The ways outlined in standard risk management guidelines to prevent lawsuits are a thousand years behind the times," said Charles Schauberger, MD, of the Gundersen Lutheran Medical Center in La Crosse. "We don't have effective research studies. I can't tell you that if I hold my bill from a patient with a bad outcome, this will prevent my chances of being sued. Some say otherwise. No one really knows."

Schauberger, an OB/GYN, said there are sure-fire ways of limiting medical liability.

"Alter your practice," he said. "Stay out of high risk areas; if you are a general practitioner, don't do

obstetrics. The only problem is that someone has to do it."

Schauberger looked at the ten major reasons obstetricians were sued in the United States, according to the American College of Obstetrics. He then compared these to the quality assurance issues outlined by the Joint Commission on Accreditation of Health Care Organizations (JCAHCO), upon which many risk management principles and procedures are based.

"There was very little overlap," explained Schauburger. "We aren't doing quality assurance work in the areas in which we are getting sued, but are doing it in areas that are easy to study."

For Schauburger, the answer is education, for himself, his colleagues and his staff.

Particularly, he said in areas such as documentation, fetal monitoring and in performing special procedures.

"If we are going to perform certain procedures, everyone has to be up to speed on the latest information," he said. "If we're going to do electrosurgical procedures and tubal ligation we all have to have taken courses on electrosurgical safety. If we are doing exams involving breast cancer identification, you have to make sure you attend breast cancer identification courses."

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court while the case was going on," he added. "But when I got there and they were there, I valued that.

- If there is a good chance of losing, settle; it's not worth it to continue battling.
- Review the case thoroughly before the trial, and know your deposition.
- Your spouse is going through hell with you. Talk with him or her about it.

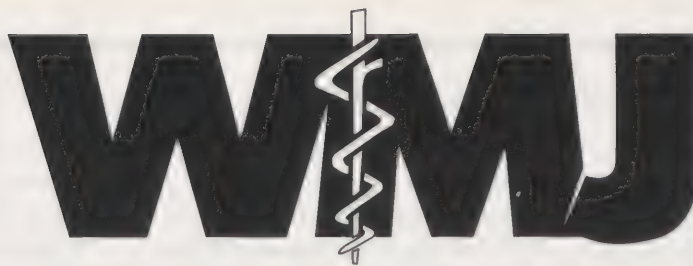
Risk managers also advise physicians who have recently been named in a medical liability case to be even more careful. Statistics indicate that these physicians are much more likely to be involved in another incident with a few months of the initial case, according to the PIAA, possibly due to the additional stress from the first circumstance.

Silver Lining

Through all the strain of preparing for a case and spending two weeks in court, Schauburger can still find positives.

"I think it has made me a better doctor," he said. "I'm a little bit more complete, more thorough, with my dictation. I study areas in which I have weaknesses. Plus, I became an activist; joining the SMS Risk Management and Liability Commission, and I became head of the Legal Affairs Committee here at Gundersen. I continue to volunteer with the Physician Support Network, and work toward reform in the legal system.

"I ended up learning so much about medical malpractice, that if I were ten years younger, I'd go to law school."



WISCONSIN MEDICAL JOURNAL

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Rare Transitional Cell Carcinoma of the Urinary Bladder Occurring During Pregnancy: A Case Report and Literature Review

by J. S. Mayersak, MD

Key Words: Rare transitional cell carcinoma, pregnancy, primigravida

ABSTRACT

A 27-year-old pregnant white woman with a transitional cell carcinoma of the urinary bladder underwent transurethral resection of the tumor followed by immunological therapy with Bacillus-Calmette-Guerin anti-tuberculous vaccine (BCG). The tumor recurred in the postpartum period. Only very rarely do such tumors complicate pregnancy, with only thirteen cases having been reported in the world literature. Most of these occur in women under thirty years of age. A possible hypothesis may be that some bladder carcinomas in young women occur *de novo* during pregnancy. The use of abdominal ultrasound in pregnancy management should allow these tumors to be diagnosed early in pregnancy.

INTRODUCTION

Transitional cell carcinoma of the bladder is very rare in people under thirty years of age. The disease occurs predominately in men and is exceedingly rare in pregnant women under thirty. The tumor is believed to be less biologically aggressive in younger people, but life-long follow-up is recommended because of unpredictable malignant tumor behavior. The literature does not contain a large amount of information about the natural course of the disease in young people who are at risk of tumor recurrence for many decades. The disease is extremely rare in pregnant women.

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CASE REPORT

A 27-year-old white woman, a primigravida, presented at 27-weeks gestation with dysuria due to a *Serratia marcescens* urinary tract infection refractory to appropriate antibiotic therapy. Ultrasound studies were normal. Urinary cytological examination was not performed. The patient had a history of smoking two packs of cigarettes per day since the age of 17. Microscopic hematuria and pyuria persisted. Cystoscopy showed a 4.5cm transitional cell carcinoma of the bladder anterior and lateral to the left urethral orifice. The tumor was removed by transurethral resection under spinal anesthesia and was found to be a grade 11, ToNoMo (Tumor, nodes, metastasis) (Fig 1). No further tumor therapy was given during the pregnancy. After delivery of a normal, full-term infant, bladder biopsy showed squamous metaplasia and mild atypia. Superficial immunological bladder cancer therapy was initiated with intracystic BCG (Bacillus-Calmette-Guerin) anti-tuberculous vaccine. Cystoscopy three months later showed a recurrence of a low-grade, superficial transitional cell carcinoma. Although this finding suggested the patient was at increased risk for recurrent disease, she remains disease-free eight years later.

DISCUSSION

Transitional cell carcinoma of the bladder, the most common urinary bladder malignancy occurring in the elderly, is rare in the young and particularly rare before the age of thirty.¹ In a review of 79 cases of this cancer occurring before thirty years of age, the age at diagnosis varied from 10-29 years with only 21% (17 out of 79) being women.² With a predilection for men, it is exceedingly rare in pregnancy. In a review of urological malignancies complicating pregnancy, Loughlin found thirteen cases of carcinoma of the bladder in the literature;

ten were transitional cell carcinomas with eight of them in patients under age 30. Hematuria and vaginal bleeding were the usual features. At the time the malignancy was detected, the duration of gestation varied from 16- to 38-weeks.³ Bartha reported one case in a 24-year-old white woman presented at 8-weeks gestation; despite the initial tumor resection, the course of that pregnancy was punctuated by three tumor recurrences.⁴ Bladder carcinomas may either become manifest in pregnancy if they antedated the pregnancy or arise de novo during the pregnancy. Those antedating pregnancy may be diagnosed by one of the early pregnancy ultrasound examinations, which is becoming more common in pregnancy management. Microscopic abacterial hematuria, another feature of this neoplasm that is easily noted on routine urinalysis, would also merit evaluation, using cytological examination of the urine. Cystoscopy should be considered in a pregnant woman whose symptoms of dysuria, pyuria and microscopic hematuria do not respond appropriately to antibiotic therapy. Weinreb, et al, reported that tumor staging during pregnancy can be safely achieved utilizing magnetic resonance imaging.⁵ Bladder cancers detected during the course of such pregnancies where the early ultrasound examinations were negative, may have occurred de novo; they presumably represent a small subset of women with a hereditary predilection for the development of transitional cell carcinoma of the bladder. Cigarette smoking is a contributing factor. Once the infant is delivered, transitional cell bladder carcinoma behave in a much more benign fashion in these young women than in the older population. Waser postulated that pregnancy had an unfavorable accelerating effect upon tumor growth because of the increased blood supply in the pelvis, although the case in point was a squamous carcinoma of the bladder.⁶ A review of the cases of transitional cell carcinoma of the bladder complicating pregnancy demonstrates that the tumor behaves differently during pregnancy. (Table 1). Although statistical conclusions are impossible with a small group of only 14 cases of transitional cell carcinoma of the bladder in pregnant women, some trends are apparent. The average age of the women is approximately 27 years. There seems to be a predilection for primigravidae, (7 of 10 stated), Caucasian race (8 of 9 stated) and the cancers appear to be low grade (grade 1 to grade 2) neoplasms. Although the course of pregnancy seems to be punctuated by recurrent disease, the bladder tumor behaves quite well post-partum, with recurrences

abating into rarity in the long run. Immunotherapy of superficial bladder carcinoma using BCG is an effective prophylaxis against tumor recurrence and should be considered for superficial tumors after delivery. In one study, tumor recurrence was reduced from 42% in patients treated with transurethral resection alone to 17% in those treated by resection and BCG immunotherapy.⁷ Although long-term recurrences become rare postpartum, these young women remain at risk for recurrent tumor for a long period of time and require long-term follow-up.

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Table 1. Photomicrograph of grade 11 papillary transitional cell carcinoma with uniform nuclei and no mitotic figures.

Author	Age & Race of Patient	Gestation Age	Symptoms	Methods of Diagnosis	Tumor size and Type	Treatment	Recurrence
Bartha ⁴	24 white primigravida	8 wks	gross hematuria	ultrasound cystoscopy	"moderate" transitional cell gr. I	TUR	21 weeks 15 x 10 mm 26 weeks (ultrasound Dx, no treatment allowed by patient
Bendsen ⁸	40 race not stated gravid not stated	32 wks	48 hr gross vaginal bleed with clots (bladder hemorrhage) prolapsed tumor from urethra	ultrasound cystoscopy cell, gr. 2	large transitional control bleeding TUR	ligation of tumor stalk to	none 4 months following resection
Choate ⁹	24 Negro gravida III	20 wks	painless vaginal 40 bleeding (bladder bleeding) stillborn infant	IVP, sickle cell preps, acid fast smears cystoscopy	dome 4 cm adeno- carcinoma	segmental resection of bladder	massive recurrence of tumor 23 months post segmental resection, patient expired
	37 white gravida VI	20 weeks	painless gross hematuria with clots 40 lb wt loss	cystoscopy 2 stage surgical procedure, #1 hysterectomy and subtotal hysterectomy #2 total cystectomy with ileal diversion, left salpingo- oophorectomy	squamous carcinoma gr. 3, stage C	2 stage surgical procedure. #1 hysterectomy & subtotal hyster- ectomy #2 total cystectomy with ileal diversion left salpingo- oophorectomy 5,000 r of deep X-ray therapy	extensive recurrent tumor, multiple fecal fistulas vagina, rectum and ileostomy involvement metastatic disease to skin patient expired
	23 white primigravida	32wks	painless gross hematuria	cystoscopy	10mm transitional cell, gr. I	removal of tumor with biopsy forceps fulgeration of tumor base	none
Cruikshank ¹⁰	18 white primigravida	38 wks	ultrasonography for placenta previa painless "vaginal bleeding", gross hematuria with clot formation	ultrasound cystoscopy 6 units of blood induction of labor	2cm.dome transitional cell, gr. I	TUR	none at 1 yr.
Fehrenbaker ¹¹	20 white primigravida	38 wks	painless gross abacterial hematuria	IVP cystoscopy induction of labor	1 cm dome transitional cell, gr. I	TUR 4 days post partum	none at 5 yrs.

Author	Age & Race of Patient	Gestation Age	Symptoms	Methods of Diagnosis	Tumor size and Type	Treatment	Recurrence
Gonzalez-Blanco ¹²	24 white primigravida	24 wks	painless vaginal bleeding (bladder) 24 hr duration	ultrasound cystoscopy	15 mm transitional cell, gr. 2	TUR	none
	23 white Gravida II	23 wks	recurrent urinary tract infection, E. cold	ultrasound cystoscopy	1.2 cm transitional cell, gr. 1	cup biopsy forceps removal	none
	24 white primigravida	16 wks	routine obstetrical sonography	ultrasound cystoscopy urine cytology	not stated transitional cell, gr. 2	TUR	none
Keegan ¹³	25 race not stated gravida 2 varicella 32 wks gestation cigarette smoker	37 wks	painless gross hematuria	cystoscopy	1.2 cm transitional cell, gr. 1	TUR	none at 2 yrs.
Loughlin ¹⁴	34 race not stated, gravida not stated	24 wks	gross painless hematuria, history resection of benign bladder tumor 1 yr. previous	urinary cytology (+); ultrasound showed multiple lesions	multiple transitional cell, gr. 2	TUR BCG therapy for recurrent tumors 3 mo course	multiple episodes with metastatic disease resulting in patient death
Mayersak	27 white cigarette smoker primigravida	27 wks	Serratia marcescens urinary tract infection hematuria, microscopic	cystoscopy	4.5 cm transitional cell, gr. 2 8 months	TUR intracystic BCG q week for 8 wks and q month for therapy.	yes 3 month postpartum none 8 yrs following BCG
Sheffery ¹⁵	36 race not stated gravida 3	28 wks	painless gross hematuria, prolapsed tumor at introitus, dilated urethra	cystoscopy	large transitional cell, tumor gr. not stated	TUR 4,800 roentgen in postpartum period	two months following initial resection
Waser ⁶	28 white gravida 3	36	flank pain, dysuria bladder stones labial pain, weight loss	cystoscopy C section	infiltrating squamous carcinoma of bladder left ureteral obstruction	laparotomy, C section	died 16 hr. post C section, tumor not metastatic expired from sepsis
Wijesuriya ¹⁶	31 Chinese	mid-trimester	terminal hematuria	ultrasound cystoscopy	Not stated transitional cell, gr. 1	TUR negative random bladder biopsies mitomycin-C for tumor recurrence	multifocal recurrent tumor gr. 1 mitomycin-C for 4 months for tumor recurrence

Relapsing Iritis in a Patient with Collagenous Colitis

by Daniel B. Brown, MD, Jose S. Pulido, MD, Jeffrey W. Kalenak, MD and Elsa B. Cohen, MD

INTRODUCTION

Collagenous colitis is a rare disorder first described in 1976.^{1,2} The majority of patients are middle-aged to elderly females. The clinical characteristic is a fluctuating proffuse, watery diarrhea. Abdominal pain, weight loss, flatulence, and nausea can also be present. The diarrhea is relapsing and remitting. One study found fecal leukocytes in 55% of patients.² The diagnosis is made by history, symptoms, high index of suspicion, and descending colon biopsy. The results of radiographic and endoscopic examination are usually normal or nonspecific. The hallmark histologic feature of collagenous colitis is abnormal thickening of the colonic subepithelial collagenous plate above its normal thickness of approximately 5 microns.³ This localized subepithelial thickening has not been documented in other colonic disorders.⁴ The etiology is felt to be infectious or auto-immune, causing a pericryptal fibroblast abnormality.² Extracolonic manifestations have been previously described in two patients with a seronegative polyarthritis.^{3,5}

CASE REPORT

A 69-year-old Caucasian woman reported a 30-year history of episodes of frequent loose stools with abdominal discomfort. She also reported a 30-year history of relapsing iritis associated with inflammatory glaucoma and cataract formation. When first seen by us in March 1995, she had a visual acuity of 20/60 OD and 20/20 OS. She had a prominent right afferent pupillary defect with intraocular pressures of 33 and 18 mm Hg,

OD and OS respectively. Slit lamp biomicroscopy of the right eye showed 2+ cell and flare of the anterior chamber. Gonioscopy revealed open angles 360° without neovascularization. Three plus nuclear sclerotic cataract was noted OD. Fundus examination was unremarkable except for cup disc asymmetry. An extensive laboratory work-up including review of a previous colonic biopsy was positive only for pathologic evidence of collagenous colitis. This trichrome-stained biopsy showed a subepithelial collagenous plate measuring approximately 12 microns. The general architecture of the mucosa was intact, with a modest increase in intraepithelial lymphocytes. No significant acute inflammation, granulomas, or crypt abscesses were seen. The patient has subsequently begun using topical ocular prednisolone acetate without relapse of iritis and has undergone trabeculectomy with cataract extraction OD.

DISCUSSION

We evaluated our patient for other causes of iritis including HLAB27 associated iritis, sarcoidosis, syphilis, Lyme disease, and tuberculosis. In addition, she was seronegative for rheumatoid factor, antineutrophil cytoplasmic antibodies and antinuclear antibodies.

Though the patient may have had two separate disease entities, namely the iritis and collagenous colitis, other forms of inflammatory bowel disease may have extracolonic manifestations including arthritis, skin nodules, and uveitis. Uveitis, including iritis, is seen in about 10% of patients with Crohn's disease and in 5% of patients with ulcerative colitis. Seronegative arthritis has been previously noted in patients with collagenous colitis, showing that this disease may have extracolonic manifestations similar to other inflammatory bowel diseases. To our knowledge, this is the first reported case of a patient with chronic iritis who also has collagenous colitis. We believe that this may be another extracolonic manifestation of this inflammatory bowel disease.

Drs. Brown, Pulido and Kalenak are associated with the Department of Ophthalmology and Dr. Cohen with the Department of Pathology at the Medical College of Wisconsin, Milwaukee, WI. This research was supported in part by an unrestricted grant from Research to Prevent Blindness, Inc., New York, NY, and by Core Grant EY01931 from the National Institutes of Health, Bethesda, MD. The authors have no proprietary interest in any procedure, device or drug mentioned herein. Reprint requests to: Jose S. Pulido, MD, Eye Institute, 925 North 87th Street, Milwaukee, WI, 53226-4812; (414) 257-5060; fax (414) 257-7353.

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Proceedings from the 1997 Wisconsin Primary Care Research Forum and Eleventh Annual WReN Meeting

The Eleventh Annual Meeting of the Wisconsin Research Network (WReN), the 1997 Wisconsin Primary Care Research Forum, was held October 24-25, 1997 in Appleton, Wisconsin. WReN, a statewide network of more than 600 primary care professionals interested in practice-based research, is organized under the auspices of the Wisconsin Academy of Family Physicians (WAFP) Research Committee and is supported by the WAFP and the Wisconsin Institute of Family Medicine (WIFM). This two-day conference is planned as a working meeting for the participants and includes presentations by invited speakers, original research by primary health care professionals and workshops related to conducting research in the office setting. The following abstracts represent presentations or original research. (Direct correspondence to: John Beasley, MD, WReN Director, 777 S. Mills St., Madison, WI 53715.)

AN OFFICE-BASED INTERNET PATIENT EDUCATION SYSTEM

Lovelie A, Helwig A (Milwaukee)

Introduction: There is great potential for the Internet to provide medical facts, advice and support for patients. However, data is lacking on patient education trials using the Internet. We piloted an office-based Internet patient education system to determine the usefulness and patient satisfaction with the Internet education materials, and to identify potential barriers to successful permanent implementation of a system.

Methods: An HTML web page directory to patient education sites meeting core standards was created. Patients interested in the Internet study were recruited in the waiting room and after physician visits. A medical student provided necessary orientation to the Internet and performed an exit interview. During the Internet session, information was collected on sites visited, sites unavailable, level of assistance required, amount of time spent, and "surfing" vs. intense reading.

Results: Ninety-four percent of patients thought the information was helpful, 90% were more satisfied with their visit, and 92% would use the Internet center again. Seventy-seven percent of patients thought they would change their health habits or lifestyle because of the information they obtained, and 97% of those who stated they would make a change were able to specify a health change they would make. Patients with home computers and younger patients were more skilled at usage the computer.

Conclusions: An office-based Internet patient education system using pre-selected Internet sites can provide useful patient education, with excellent patient satisfaction. Computer skill level of patients can be an obstacle in effectively implementing a system.

VAGINAL WET PREPS: OPTIMAL LOCATION FOR SPECIMEN COLLECTION

Gabrys J, Swain GR (Milwaukee)

Background: Diagnosis of vaginitides is usually made based on commonly agreed-upon diagnostic criteria (such as clue cells) for saline wet prep analysis of vaginal discharge. A literature search revealed no studies that differentiate the accuracy of saline wet preparation specimens collected from the posterior fornix versus from the vaginal side wall. We hypothesized that one method may have a higher yield than the other, and thus could be scientifically recommended for clinical practice.

Methods: We studied 241 consecutive female patients presenting to a large urban sexually transmitted disease clinic with or without vaginal discharge. During the examination, specimens were taken from the posterior fornix and from the vaginal side wall and eluted in 1 cc of sterile saline. These saline wet preparations were analyzed for clue cells, yeast hyphae and trichomonads by certified medical laboratory technicians who were blinded to the location of the specimens' origin and to the clinical diagnoses of the patients.

Results: Statistical analysis revealed no significant difference between yield from wall specimens vs. fornix specimens. However, an additional 5%-20% of cases were identified when both tests were used together.

Conclusions: The yield of wet prep analysis in this study was unaffected by whether the specimen is taken from the posterior fornix or the vaginal side wall. However, if the patient is likely to have a vaginosis/vaginitis and the wet prep from the first site is negative, practitioners could consider taking another wet prep from the second site.

RESIDENTS' COMFORT WITH ROLES OF A PHYSICIAN: CORRELATIONS WITH PERSONALITY AND EVALUATIONS

Marnocha M (Appleton)

Family physicians may have the widest range of roles they must carry out in patient care. A list of 20 physician roles was developed as part of medical student education; small samples of students, family practice resi-

dents and faculty have shown comparable rank-orders of roles with respect to comfort level. Roles with the most comfort are: Patient Educator, Problem-Solver, Counselor, and Student of Medical Knowledge; roles with least comfort include: Financial Manager, Scientist/Researcher, Procedural Virtuoso, and Spiritual Advisor. Males rated less comfort in the role of Family Therapist, but more comfort in roles of Problem-Solver and Physiologist.

A pilot-factor analysis yielded six factors accounting for 68% of variance. The two largest factors related to counseling roles and to technical skill roles. Extraverted (Myers-Briggs) residents were more comfortable than Introverted in roles of Family Counselor, Teacher of Professionals, Community Leader, Patient Educator, and Crisis Leader. Intuitive residents were more comfortable than Sensing residents in roles of Scientist/Researcher, Counselor, Problem-Solver, and Crisis Leader. Sensing residents were more comfortable in the role of Jack of All Trades. More resident comfort in the roles of Employer/Supervisor, Business/Financial Manager, and Technical Expert was correlated with less favorable evaluations by physician faculty and front desk staff.

Future research is intended to generate better normative data and a more stable and definitive factor analysis based on larger samples. Different training programs may attract residents with different areas of comfort. Additional roles may need to be included in the instrument. Academic goals and objectives could include consideration of individual residents' needs for mentoring in different physician roles.

PRACTICE CHARACTERISTICS OF WISCONSIN FAMILY PHYSICIANS AND THEIR PROVISION OF SPECIFIC HEALTH MAINTENANCE FOR PEOPLE WITH DOWN SYNDROME

Smith DS, Mark DH, Clarkson T (Milwaukee)

Background: The purpose of this study was to describe the health maintenance practices of Wisconsin family physicians for people with Down syndrome. Their practices were compared to a sample of recommended practices from the Health Care Guidelines for Individuals with Down Syndrome. Physician attitudes about their care and the recommended practices was also assessed.

Methods: A random sample of 400 Wisconsin family physicians was sent a ten-page packet which included a questionnaire, a fact sheet about Down syndrome, Down syndrome specific growth charts, and health maintenance flowcharts.

Results: The response rate was 54%. Fifty-three percent of those surveyed provided continuing care to people with Down syndrome. The median number of patients with Down syndrome in their practice was 2. Only 6% adhered to all the special health maintenance practices. Adherence to any one of the selected items varied from 10%-50%. Ninety-six percent felt the information provided was useful and 85% reported a willingness to change their health maintenance practices.

Conclusions: Physicians generally do a poor job of providing the health care and counseling as recommended by the "Health Care Guidelines for Individuals with Down Syndrome". However, many are willing to improve the services they provide if given the proper information and resources. There is also a discussion of the complex task of changing physician practices.

RATES OF ANTIBIOTIC PRESCRIBING BY FAMILY PRACTICE RESIDENTS FOR BENIGN, SELF-LIMITED RESPIRATORY INFECTIONS

Amspaugh J, Temte JL (Madison)

Purpose: Antibiotic medications are often used for benign, self-limited respiratory tract infections. The purpose of this study was to estimate the means and variances of the rates of antibiotic prescription among PGY-3 family practice residents for three common acute respiratory infections: upper respiratory tract infection, pharyngitis and bronchitis/bronchiolitis, and to assess the ratio of cases of URI to bronchitis.

Methods: Charts were audited for visits with each of 14 PGY-3 family practice residents from January 1, 1996 to December 31, 1996 with a target of 20 charts per diagnosis per resident. The mean and variance of the rate of prescribing antibiotics were calculated for each diagnosis. Rates among the residents were compared using chi-square statistics.

Results: The mean rates of antibiotic prescribing for acute URI, acute pharyngitis and acute bronchitis were 8.6%, 40.1% and 80.2%, respectively. On average, the residents diagnosed 3.7 cases of URI to each case of bronchitis. Wide ranges existed among residents in their personal rates of prescribing antibiotics for URI (0% - 21%), pharyngitis (0% - 100%), and bronchitis (18% - 100%), and in their ratios of URI to bronchitis cases (1.1 - 9.9). Significant differences were found among residents in their rates for prescribing for bronchitis ($P < 0.005$) and in the ratio of diagnosed cases of URI to bronchitis ($P < 0.005$).

Conclusions: Antibiotics are often prescribed by senior family practice residents for acute respiratory infections even though their use may not be indicated. The finding that the rates of antibiotic prescribing and the ratios of URI to bronchitis are highly variable among individuals indicates that these behaviors may be amenable to change.

SYMPTOMS ASSOCIATED WITH NON-STREPTOCOCCAL PHARYNGITIS: THE ROLE OF VIRAL DISEASE IN THE COMMUNITY

Yusef-Safavi J, Temte JL (Janesville)

Purpose: This study described the temporal course of non-streptococcal pharyngitis (NSP) over a three-year period at a family practice clinic and assessed (1) whether cases were clustered in time, (2) whether symptom

patterns could be associated with peak occurrences of NSP, and (3) if peaks coincided with viral infections in the community.

Methods: Numbers of negative rapid strep tests per week were compiled for 157 weeks. Clustering was tested against a poisson distribution. Discrete peaks of NSP were identified from graphical analysis. Chart audits for symptoms were performed for NSP visits within one week of each peak. Chi square analysis assessed whether differences in frequency of symptom categories occurred between NSP peaks. NSP peaks were compared to viral disease monitoring data to assess possible roles of viruses.

Results: 2,441 (81.8%) of 2,984 rapid strep tests performed were negative. NSP was significantly clustered in time ($P<0.001$) resulting in 14 distinct peaks. Late fall and winter peaks coincided with the presence of influenza A and B and RSV. Symptom categories differed significantly among peaks ($P<0.005$). Cases of NSP associated with a high prevalence of lower respiratory tract symptoms coincided with viral pathogens known to affect the lower respiratory tract.

Conclusions: Clusters of NSP occurred and formed distinct peaks of occurrence during which differing symptoms predominated, supporting the hypothesis that NSP is attributable to common viral pathogens in the community. Awareness of the season of occurrence and symptoms associated with pharyngitis may assist the clinician with cost-effective diagnosis and treatment of this common clinical problem.

RESULTS OF A TOBACCO PREVENTION SURVEY

Sheperd TM, Hueston WJ, Brauer N (Eau Claire)

Purpose: To identify the current level (time and type) of training primary care resident physicians receive in tobacco use prevention, attitudes regarding tobacco use prevention, and current techniques used to prevent tobacco use.

Methods: To evaluate the level of training received by residents, a survey was constructed by the author. The surveys were mailed on July 2, 1997. Two reminders were sent and all responses obtained by October 1, 1997 were analyzed. All allopathic residency programs in family medicine in the states of Michigan and Wisconsin were sampled.

Results: A total of 719 surveys were mailed to the 33 residencies in the states of Wisconsin and Michigan. Twenty-eight percent were returned (206) from 54.5% (18) of the residency sites selected. More than 80% of the residents reported less than five hours of training to identify tobacco use and approximately 70% reported less than five hours of training in tobacco use cessation techniques. Nearly 60% of residents felt their tobacco use prevention training was inadequate and 70% were either moderately or very interested in additional training. Time was identified most commonly as a barrier to additional training. Residents ask questions about second-hand smoke in less than half of clinic patients.

Conclusion: Currently, family medicine residents receive little training to identify tobacco use in their patients and have little training in helping tobacco users quit. There is significant willingness to increase tobacco prevention training during residency. Future research may help identify techniques which may be incorporated into residency training programs and be helpful for family physicians to use in the battle against the tobacco pandemic.

VALUE TYPE RATINGS OF FAMILY PHYSICIANS AND PRACTICE DEMOGRAPHICS

Eliason BC (Milwaukee)

Background: Personal values are defined as "desirable goals varying in importance that serve as guiding principles in people's lives." We have previously reported from two family physician groups a positive correlation ($p<0.05$) between the benevolence value type and practice satisfaction and a negative correlation between practice satisfaction and the power value type ($p<0.05$). We wish to further explore relationships between the value type ratings of family physicians and certain professional activities.

Methodology: We randomly surveyed a stratified probability sample of 1,224 practicing family physicians about their personal values (using the Schwartz values questionnaire), practice satisfaction, practice location, breadth of their practice, demographics, board certification status, teaching involvement, and the payor mix of their practice.

Results: We had 714 useable questionnaires returned (14 were not useable) for a 59% response rate. The highest-rated single values were family security and honesty and the lowest were social power and detachment. These family physicians rated the benevolence value type highest and the power value type lowest. Family physicians whose practice included $>30\%$ charity and indigent care rated the universalism value type higher ($p=0.03$). Other associations included: (1) Those involved in some teaching were more satisfied than those not involved in teaching ($p<0.05$). (2) Physicians involved in inpatient medicine rated power values higher ($p<0.05$) than those not. (3) Family physicians who included obstetrics in their practice rated hedonism value type lower ($p<0.05$) and universalism ($p<0.05$) higher than those not doing obstetrics.

Conclusions: (1) High ratings of benevolence value types, low ratings on the power value type and involvement in teaching leads to increased professional satisfaction. (2) Family physicians who rate universalism values highest are more likely to care for the underserved.

EFFECTS OF A SYSTEMATIC APPROACH TO TOBACCO CESSATION IN A COMMUNITY-BASED PRACTICE

Pine D, Sullivan S, Sauser M (Minneapolis, MN)

Objective: Studies suggest that the absence of a systematic approach is a barrier to the provision of tobacco cessation counseling services in clinical practice. A system-

atic intervention was shown to be feasible and effective at a family practice site. Our pilot study was designed to examine the feasibility of implementation at a community-based practice, and to assess the effect of the counseling system on our patients' tobacco use.

Design: Patients were assessed at their first visit during the study period, given the counseling intervention at each visit, and followed up prospectively to assess changes in "Readiness to Quit" stage.

Setting: Community-based primary care clinic.

Patients: All patients identified as tobacco users at baseline with two or more visits during a two-year period and > one year interval between the first and last visit (n=122). Mean follow-up time after baseline was 3.5 years.

Intervention: Systematic assessment (smoking status, "readiness to quit"), brief counseling at each visit, and follow-up (for those ready to quit) were provided by a nurse/physician team (physician only after July 1993).

Main Outcome Measures: Assessment and advice by physician/nurse, cessation rate, changes in "Readiness to Quit", as documented in charts.

Results: Tobacco use assessed >95% of visits; 79% advised to quit; 21.3% quit smoking for > six months.

Conclusions: The results suggest that this office-based tobacco cessation counseling system can work in a community-based practice, and is an effective strategy for helping smokers quit.

PREVALENCE OF DOMESTIC VIOLENCE IN FAMILY PRACTICE CLINICS IN THE FOX CITIES AREA AND RATE OF PHYSICIAN INQUIRY

Watson M (Appleton)

Purpose: To determine the prevalence of domestic violence among adult female patients in the Fox Cities area of Appleton (includes Appleton, Kimberly, Kaukauna, Little Chute, Combined Locks, Menasha, Town of Menasha, Darboy, Grand Chute, and Neenah) and the rate of physician inquiry. This information will be used to educate and encourage physician and other health care provider interest in this issue.

Method: A 14-question, one-page survey was given to the first 400 women who were 18 or older, understood English, and were free of dementia at the Family Practice Residency. Several area family practice clinics have agreed to participate. Once the patient has been roomed but before the physician comes in a nurse or the researcher explains the study and asks the woman patient if she is willing to complete the survey. It takes about one minute or less to fill out.

Results: The data are still being collected. However, with about 300 surveys in, about 55% of women say they have either been afraid or physically hurt by their partner sometime in the past. About 5% say this is true within the last 12 months. Correlations (or no correlations) with demographic information has yet to be calculated.

Conclusions: Though data are not yet fully collected or analyzed, the preliminary results at least suggest that over half of the adult women in the Fox Valley area of Wisconsin have been in fearful or harmful situations at some time in their relationship history. The data also suggest that many women either leave that relationship or the relationship changed so that they no longer live in fear or threat of harm. Further thought into the meaning of the data is warranted.

SELF-ATTRIBUTED FACTORS LEADING TO PHYSICIANS' PSYCHOLOGICAL WELL-BEING

Swain GR, Weiner EL (Milwaukee)

The sources of psychological well-being in physicians are unclear. Most studies to date fail to explore positive functioning, focusing instead on impairment or using the absence of symptoms as a surrogate for health. We previously received 314 completed surveys from physician members of a statewide office-based research group. Survey measures included standardized, previously validated instruments. Quantitative analysis revealed that family-of-origin variables (especially individuation, i.e., family members' ability to maintain their own identities when around other family members) were significant predictors of current psychological well-being, as were current levels of relationship support and practice stress.

More than 100 respondents answered our single open-ended question "How do you creatively cope with your physical, emotional, and spiritual needs?" We therefore developed a code-book, and proceeded with qualitative analysis.

Respondents' coping strategies sorted into five categories: Self-care activities (reading, exercise, etc.), relationships (family, friends, community), religion/spirituality (prayer, church activities, etc.), work (deriving meaning from work, limiting one's practice, etc.), and philosophical approaches to life (e.g., "be positive," "keep a balance," "focus on successes"). Use of a philosophical approach to life coping strategy was associated with significantly higher levels of current psychological well-being when compared with any other coping strategy or to those who did not report a coping strategy. Philosophical approach to life strategy use also significantly modulated the extent to which respondents' current psychological well-being could be predicted by practice stress, relationship support, or family-of-origin issues.

INITIAL MANAGEMENT OF DYSPESIA IN PRIMARY CARE SETTINGS: THE WREN PRACTICE-BASED RESEARCH GROUP DYSPESIA STUDY

Temte JL, Hankey T (Madison)

Purpose: This one-year WReN Practice-Based Research (PBR) Group study had the following objectives: (1) estimate the prevalence of dyspepsia, (2) evaluate diagnostic

and treatment approaches in initial management, (3) assess patient characteristics associated with diagnostic testing, (4) conduct follow-up chart review and patient survey to assess accuracy of initial diagnoses and patient satisfaction.

Methods: Eighteen physicians cooperated in data collection during a one-year period. All visits with patients presenting for dyspepsia were recorded on standardized data forms. Two group discriminant analysis identified characteristics associated with referral for EGD or upper GI X-ray. Charts of all patients initially evaluated for dyspepsia were reviewed after 6-18 months to assess the accuracy of initial diagnosis and to estimate the rates of resolution, follow-up, and referral. A patient satisfaction questionnaire was mailed to all patients who were initially seen for dyspepsia.

Results: Participating physicians recorded a total of 45,337 visits, with 231 for dyspepsia (0.51% of total clinic visits) and 118 for initial management of dyspepsia (51% of dyspepsia visits). Details regarding patient demographics, symptoms, past medical history, habits, physical examination findings, laboratory tests, diagnoses, therapies and disposition are provided. Only hematemesis and melena were significant predictors of ordering EGD or upper GI X-rays. Initial diagnostic accuracy was estimated at 68%. Functional disorders were underdiagnosed by 32% while organic disorders were overdiagnosed by 90%. Overall, 87% of patients were satisfied with the care provided by their family physician.

Conclusions: Fewer patients presented with dyspepsia than expected. Initial diagnoses were fairly accurate, but with a bias toward overdiagnosis of organic disorders. Patients were generally satisfied with primary care management of dyspepsia.

TRENDS IN FAMILY PRACTICE MATERNITY CARE IN WISCONSIN, 1989-1994

Wolkowicz MS, Gottlieb MS, Bower D, Owen L (Milwaukee)

Introduction: Family physicians are essential to US maternity, but have been abandoning OB. Efforts have been made to encourage FPs to deliver babies and reports suggest a recovery is in process.

Purpose: To track FP deliveries from 1989 to 1994.

Methods: A descriptive analysis of birth certificate data linked to physician specialty.

Results: The number of Wisconsin FPs delivering babies, and babies delivered by them declined between 1989 and 1994. FPs performing deliveries in rural counties remained unchanged. Urban FPs performing deliveries fell significantly.

Conclusion: Results indicate that FPs in Wisconsin have reduced their involvement in obstetric practice. Methodologic difficulties remain.

OUTCOME OF PATIENTS UNDERGOING PTCA

Pastemak AV, Hahn DL, McBride P (Madison)

Introduction: Thirty-three to sixty percent of patients who have percutaneous transluminal coronary angioplasty (PTCA) will have restenosis within six months. Recently, *Chlamydia pneumoniae* (Cpn) has been investigated as a cause of coronary artery disease. The goal of this study is to determine if Cpn is related to restenosis after PTCA. This presentation represents our preliminary findings.

Methods: This is a cohort study of patients undergoing PTCA at St. Marys Hospital Medical Center from October, 1994 to September, 1996. Patients were enrolled at the time of their consent for PTCA and serum was collected during the procedure. A chart review was done to assess cardiovascular risk factors and details of the PTCA. At least six months from the time of PTCA, hospital and clinic records were reviewed and surveys sent to patients to determine outcome status. Outcome was divided into eight categories ranging from patients having symptoms and requiring revascularization to patient having no angina and normal non-invasive tests.

Results: We enrolled 377 patients and have outcome data on 313. The average age of patients was 61 years old and most patients were men (73%). In the two main outcome classifications, 134 patients (42%) had symptoms and required revascularization while 82 patients (26%) were asymptomatic and had a negative nuclear medicine test. Outcome was not related to tobacco use, hypercholesterolemia, diabetes, hypertension or family history of CAD.

Discussion: Forty-two percent of patients having PTCA required revascularization. We will use these data to help determine if *Chlamydia pneumoniae* has a role in restenosis.

PATIENTS' UNDERSTANDING OF PAP SMEAR PURPOSE AND CERVICAL CANCER RISK FACTORS

Raehl DA, Winandy M (Eau Claire)

Purpose: To assess women's understanding of pap smear purpose and cervical cancer risk factors.

Methods: A six-month, cross-sectional consecutive sample of women presenting to the Eau Claire Family Medicine Clinic for a pap smear were asked to complete a 15-item questionnaire. The questionnaire focused on participants' knowledge about pap smears, cervical cancer risk factors, gynecological history, and demographics. The percentages of women who were unaware of pap smear purpose and those who could not identify specific cervical cancer risk factors were compared against demographic and clinical variables using Chi-square and t-tests.

Results: Ninety-five percent of the respondents knew that pap smears checked for cervical cancer (n=261, return rate 89%). However, some women also thought that pap smears checked for uterine cancer (73%), ovarian cancer (57%), sexually transmitted diseases (63%), yeast infections (54%), pregnancy (24%), and AIDS (16%).

Fewer than 60% of the women could identify cervical cancer risk factors. Women who previously had more than four pap smears could more accurately identify pap smear purpose and cervical cancer risk factors. Women with a history of an abnormal pap smear could more accurately identify cervical cancer risk factors but not pap smear purpose.

Discussion: This study confirms that many women do not adequately understand their gynecologic preventative health care and suggests that improved patient education efforts are needed.

PREVALENCE OF GAMBLING DISORDERS IN A PRIMARY CARE CLINIC

Pasternak AV, Lee M, Fleming M (Madison)

Introduction: Seventy to ninety percent of all Americans gamble. Previous population-based studies have shown a 1.4%-2.8% prevalence of gambling disorders, but no published studies have looked in clinic settings. Our study goal was to find the prevalence of gambling disorders in a family medicine clinic.

Methods: We invited patients over 18 years old presenting to the Wingra Family Medical Center to participate. Patients completed the questionnaire while waiting for their physician. The questionnaire uses the South Oaks Gambling Screen (SOGS) to assess gambling habits. Patients with scores of 3 or 4 on the SOGS are considered problem gamblers and scores of 5 or greater constitute probable pathologic gamblers. Patients were asked about use of tobacco, alcohol and marijuana. We also assessed for depression and anxiety symptoms along with backaches, headaches and abdominal pains.

Results: A total of 127 patients were asked to participate in the study and 105 consented. Eighty-four patients fully completed the survey. The average age of patients was 39 years (range 18-95 years). Seventy-two percent of patients had gambled. Three patients (3.6%) were problem gamblers and three patients (3.6%) were probable pathologic gamblers. Patients with gambling disorders were more likely to be non-Caucasian (Chi-square = 7.27, $p < 0.005$). Every patient with a gambling disorder made less than \$35,000 although this did not reach statistical significance.

Discussion: Six patients (7.2%) met criteria for gambling disorders. These patients tended to be non-Caucasian and from lower socioeconomic groups. The study is limited by a small sample size and generalizability.

CULTURAL FOODS IN INNER CITY MILWAUKEE

Hunter P, LaBianco LE, Chon H (Milwaukee).

Purpose: Promoting healthy diets among African-Americans is the mission of the Cultural Foods Project. Culture shapes diets. African Americans mistrust medical research (Tuskegee syphilis study). We sought to assess the nutritional content of favorite recipes before and after low fat

modifications. While determining the geographic and social origins of the recipes, we hoped to honor cultural traditions and build trust for future research.

Methods: Subjects were from a diabetes class at a clinic. They entered recipes in a "Food Fair" in October, 1996. A dietitian suggested modified recipes for a "Low-Fat Recipe Contest" in February, 1997. Dietitians entered the recipes into PC-based software and generated nutritional analyses. Medical and pre-med students interviewed subjects about origins of recipes.

Results: Students interviewed 11 African American women aged 60 - 80 years who migrated from the South in the 1950s and 1960s. Their mothers were the sources of the recipes. Reasons for changing recipe were more often to improve taste and to substitute for ingredients not available, rather than to improve health. Traditional recipes were higher in fat (40% calories from fat) and in saturated fat (13%) than national recommendations (30% and <10%). Recipes as modified by dietitian were similar in fat, (39%) but lower in saturated fat (7%). Other nutrients were similar between traditional and modified recipes.

Conclusions: Dietary habits are deeply embedded in memory and culture. Understanding how a patient's cultural background influences his or her diet might help in providing effective dietary advice. The next phase of the project will involve dietary recalls to see if traditional recipes comprise much of the contemporary diets of residents in inner-city Milwaukee.

PREVENTIVE MEDICINE IN A FAMILY PRACTICE RESIDENCY: HAVE NEW MEDICARE GUIDELINES CHANGED COMPLIANCE?

Pribbenow B, Pachner R, Whyte B, Brill J, Baumgardner D (Milwaukee)

Purpose: Preventive medicine is an important aspect of family practice. Recently the US Preventive Services Task Force published revised minimum recommendations for various prevention topics. On July 1, 1996, the Health Care Financing Administration (HCFA) enacted new Medicare guidelines forcing stricter faculty staffing of resident patients. Our purpose is to: (1) ascertain the level of compliance with basic preventive medicine services at a family practice residency clinic, and (2) determine if the new HCFA guidelines have changed compliance.

Methods: Six hundred charts from a Milwaukee family practice residency clinic were retrospectively reviewed for compliance with tetanus booster immunizations, cholesterol screening, healthy diet counseling, pap smears, mammograms, and hepatitis B vaccinations according to the US Preventive Services Task Force minimum recommendations. Patients were included if they were seen for any reason between July 1, 1995 and July 1, 1996 in the pre-Medicare guidelines group and from July 1, 1996 to July 1, 1997 in the post-Medicare guidelines group. Patient age and status with the appropriate preventive services were determined according to the last

day of each study period. Groups were compared using Epi-info software.

Results: There were no significant differences between the pre- and post-Medicare guideline groups for tetanus boosters (39% pre; 44% post), cholesterol screening (72% pre; 75% post), healthy diet counseling (32% pre; 34% post), pap smears (52% pre; 53% post), mammograms (67% pre; 67% post), or hepatitis B vaccinations (42% pre; 49% post).

Conclusions: New Medicare guidelines enacted July 1, 1996 to force stricter faculty staffing of resident patients at a Milwaukee family practice residency clinic resulted in no change in compliance with minimum recommendations of basic preventive medicine. The level of compliance was above national averages.

OFFICE USE OF X-RAYS BY FAMILY PHYSICIANS IN WISCONSIN

Smith PD (Madison)

The study was to evaluate the variables that influence a family physician's decision to have an X-ray taken at his/her office overread by a radiologist. A one-page, two-sided survey was mailed to about 210 WReN physicians requesting information about the use of X-rays in their office and factors that influence their decision to have a radiologist overread the X-rays. There was an 80% return rate of the survey. Seventy-six percent of respondents have X-ray capability in their office, 87% in the same building. Twenty-five percent of respondents do NOT have all of their office X-rays overread by a radiologist. The most commonly ranked reason for obtaining overreading was "to confirm X-ray diagnosis." Eighty-two percent answered "yes" to the question, "Do you believe primary care physicians who obtain radiographs in their office should be able to select which films are to be sent for radiological consultation?" Twenty-nine percent have a radiologist in their medical group. Fifty-nine percent have a formal written agreement with the radiologist. Twenty-five percent have some direct or indirect financial loss and 2% have some indirect financial gain as a result of radiologists' overreading of office X-rays.

JAUNDICE RECOGNITION AND MANAGEMENT IN HEALTHY TERM NEWBORNS

Madlon-Kay DJ (Maplewood, MN) 12

Purpose: Newborn jaundice is a common problem whose management has always been controversial. Now jaundice recognition and management is even more challenging with the current early discharge of newborns. The purpose of this study is to learn more about how family physicians are dealing with these controversies and challenges.

Methods: Members of the Practice-Based Research (PBR) group of the Wisconsin Research Network (WReN) and the Minnesota Academy of Family Physicians (MAFP) Re-

search Network and interested practice colleagues are participating in the study. Healthy term newborns cared for by the study physicians in the newborn nursery and for whom follow-up information is available for the infants' first two weeks of life are included in the study. Physicians collect up to ten items of information about each of these infants on study cards that are mailed monthly for a total of six months.

Results: At the time of the WReN meeting, five months of data collection will have been completed. These preliminary results will be presented at the meeting.

INSIGHTS INTO PATIENTS' USE OF DIETARY SUPPLEMENTS

Huebner J, Eliason BC, and Marchand L (Milwaukee)

Dietary supplements including vitamins and minerals, herbal products, tissue extracts, proteins and amino acids, and other products are widely consumed by Americans. Government oversight of dietary supplements is limited, while patients typically do not consult their physician about using supplements. We conducted a qualitative study in order to describe patients' decisions regarding their use of dietary supplements and communication with their physician concerning supplements. Four focus groups of customers from three local suburban health food stores were interviewed. The data revealed three major themes: (1) These customers/patients used supplements primarily to maintain or restore wellness. They wish that physicians would more often address wellness, preventive medicine and nutrition with them. (2) Their methodology in determining the benefits of supplements was characterized by experimentation, i.e., trial and error. The benefits experienced were mainly subjective, i.e., they felt better, had more energy and fewer aches, and had fewer colds. (3) They seek physicians who will empower them, listen to them and be a partner with them in their health care. Health food store customers in this study were self-informed consumers that do not consult their physicians about their use of dietary supplements because physicians are perceived as not being knowledgeable, open-minded or interested in supplements. A patient-centered approach would allow physicians to better care for patients that use dietary supplements.

INCREASING CLINICAL PREVENTION EFFORTS IN A FAMILY PRACTICE RESIDENCY PROGRAM THROUGH CONTINUOUS QUALITY IMPROVEMENT METHODS

Leshan LA, Fitzsimmons M, Marbella A, Gottlieb M (Milwaukee)

Background: Primary care physicians miss many opportunities to offer clinical preventive services as they develop ongoing relationships with their patients. The reasons for these missed opportunities are diverse. For example, patients and physicians may be accustomed to dealing with only acute problems during visits, reimbursement to physi-

cians for these services is questionable, and prevention often involves patients to change unhealthy behaviors. We will describe an inner city family practice residency's use of Continuous Quality Improvement (CQI) to improve its provision of clinical prevention services.

Methods: A preliminary chart audit was conducted to assess the level of preventive services offered at a family practice residency program. Continuous quality improvement (CQI) methods were used to analyze barriers and determine ways to improve. After implementing some of these strategies a second chart audit was then conducted to evaluate their effectiveness in raising the level of preventive services provided.

Results: Through CQI methods, the physicians and staff determined that problems with providing preventive services could be categorized as either physician-centered, clinic-centered or patient-centered. Interventions were designed to address each of the problems. Following the interventions, significant improvements were found in 81% or 17 of the 21 clinical preventive services that needed improvement.

Conclusion: Significant increases were seen in the amount of preventive services performed at the clinic following CQI methods of interventions. Other areas for further improvement were delineated. Continuous quality improvement can be an effective method for improving clinical prevention services in a family practice residency program.

A NEW EDUCATIONAL APPROACH TO THE SPORTS PHYSICAL: A DEMONSTRATION PROJECT

Hankey TL, Rohan C (Waupaca)

This project demonstrates that an educational approach to the sports physical is feasible in the office setting. It assesses the responses of the student athletes, parents and providers to the educational approach.

The office visit for a WIAA sports physical was structured to be an educational experience. The student athletes were males and females from 12 to 18 years of age from area schools from several communities.

Each student was given a packet containing a WIAA green card, an envelope for parents explaining the program, gift certificates, recommendations for stretching exercises specific for each athlete's sport. Essential information included a "philosophy of sports", the five "killer risks", and the five "life wrecker risks". The common injuries for each sport, immunizations, health risks were reviewed and preventive measures were taught. Then a standard brief physical examination was performed and abnormal findings were recorded. Recommendations were sent to parents and family physician. After a post-test was completed, the green card was given to the student. The student received (1) educational brochures, (2) a WIAA required sports physical, (3) a sport-specific risk evaluation, (4) recommendations for parents and family physician, and (5) a post-test.

Sixty-one student athletes were screened. The educational approach was well received by students and parents. The students were sincere and serious about the "Big Quiz". Many problems and recommendations were recorded and conveyed to parents and the students' family physician for follow-up.

The educational approach to the sports physical is a viable alternative to the simple administrative physical. Providers were more satisfied with their contribution.

The study was sponsored by the LaSalle Clinic.

A RANDOM, BLINDED, ANONYMOUS SAMPLING OF DRUG METABOLITES IN STUDENT ATHLETES IN A SMALL MIDWEST TOWN

Hankey TL, Rohan C (Waupaca)

A recent study suggested that 38% of students reported some illicit drug use and up to 68% used alcohol. A scheduled sports physical offered an opportunity to confirm these interview data by chemical analysis.

As part of the physical exam, a dipstick urine test was performed. An aliquot of each specimen was collected and tested. The specimens were randomized by shuffling a deck of premarked playing cards. The cards were drawn to indicate which specimens were to be discarded and which metabolite tests were to be performed. Ten percent of the specimens were discarded. All of the remaining samples were tested for marijuana, cocaine, opiates and amphetamines. Forty percent of the samples were tested for alcohol and cotinine, respectively. There was no way to know which students were included in the study, therefore informed consent was not required.

Of 61 participants, ages 12 to 18, specimens for approximately 10% were discarded. Of the remaining 56 specimens, there was only one specimen which tested positive. The remaining tests were negative. It can be concluded with 95% certainty that no more than 20 students had used illicit drugs. This far below the expectations predicted by the previous study. Possible reasons are that (1) the self-reporting method overestimates the actual rate of drug use, or (2) the group represented by student athletes is a self-selected group which is very different from the student population at large.

The study was sponsored by the LaSalle Clinic and the Marshfield Clinic.

FAMILY PRACTICE AND THE MYERS-BRIGGS: LONGITUDINAL DATA DURING AND AFTER RESIDENCY

Marnocha M, Kalb E (Appleton)

The Myers-Briggs Type Indicator (MBTI) is a widely used measure of personality differences among healthy individuals and has been used for staff development, team building, and relationship counseling in business and health care settings. For several years MBTI results among family practice residents have been monitored, as well as precep-

tor ratings and data concerning practice settings and comfort level among graduates several years after initial personality testing.

ESFJ preferences were correlated with higher ratings of resident performance throughout residency training. INTP preferences were associated with lower initial preceptor ratings, though these converged with the ESFJ ratings as training concluded. More outgoing and relationship focused residents may make better initial adjustment to residency.

Myers-Briggs results early in residency predicted some differences in practice setting several years post-residency but were not predictive of ratings of satisfaction with medical practice after residency. However, satisfaction ratings were predicted by MMPI measures at the beginning of residency.

All 16 personality types were represented among 98 residents from two different community FP residencies. The most frequent personality types observed were those associated with thoughtfulness, reliability, and practicality; 26% of residents were ISTJ/ISFJ. In contrast, only 6% of residents were INFP/ISFP, a style more associated with Bexibility, non-assertiveness, and emotional reserve.

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The initial data summarized here support the validity of the Myers-Briggs, but suggest the value of other personality measures to predict long-term emotional adjustment to the medical career.

CHARACTERISTICS OF CANCER PREVENTION SERVICES BY URBAN AND RURAL PRIMARY CARE PHYSICIANS IN THE UPPER MIDWESTERN US

Baumann LC, Perng YM (Madison)

The distribution of primary care services and resources in rural areas have been a concern of policy makers, health care providers, and clients. This paper compares rural and urban primary care physicians' attitudes and perceptions of barriers to delivering cancer screening and prevention services.

Post-intervention questionnaires were administered as part of a three-year study to increase cancer screening and prevention services in primary care sites to adults 50-65 years old. At the onset of the study, 186 physicians from 45 practices completed a questionnaire and 161 completed it post-intervention, for an 87% follow-up rate. Rural or urban was determined by practice location zip code. Practices, 74 rural and 87 urban, were in Minnesota, Michigan, Iowa and Illinois. Medical records of 5277 patients who consented were reviewed for selected cancer prevention services.

Questionnaire items included physician's demographic characteristics, perceptions of barriers to delivering the following preventive services: counseling about diet, smoking and breast self-examination, and four procedures that included sigmoidoscopy, hemoccult testing, clinical breast examination and mammography.

Few differences were found between primary care physicians in urban and rural areas. However, the direction of differences consistently show a lower proportion of annual services provided in the rural practices.

This research was supported by American Cancer Society Psychosocial and Behavioral Research Grant No. PBR-51 (Richard R Love, PI).

GRADE SCHOOL FITNESS COMPARISON STUDY

Boogaard S, Watson M, Tomashek B, Marnocha M (Appleton)

The purpose of this study is to compare the fitness levels of children ages 5-12 to the national fitness standards. The comprehensive fitness testing that is part of the school's physical education curriculum, includes height and weight measures also. Our intent with this study is to establish baseline data regarding health-related fitness with the intention of longitudinal research with the subjects.

The initial phase of this research involves a descriptive analysis of fitness data (Presidential Fitness Award measures) for all students within a grade school of approximately 360 children. Data will be obtained from school records, subject to parental consent, coded, and entered. Overall means and means by grade will be compared with national norms.

This research project was initiated April 30, 1997 and all fitness scores will be collected by the end of the academic year (May 31, 1997). The results of this study are not yet available due to the curricular timing of fitness testing at the school. The authors anticipate collation, conclusions, and longitudinal plans to be completed by August of 1997.

BREAST SIZE AND UPPER BODY PAIN IN WOMEN PRIMARY CARE PATIENTS

Slane J, Kastner K (Wanwautosa)

Women presenting to a residency-associated primary care clinic were recruited into the study. Participants were asked to mark a body-diagram with locations and severity of pain symptoms. They also completed a demographic survey and questions about comorbid conditions and bra size and fit. Bust, waist and hip measurements as well as height and weight were recorded for each participant. There was no correlation between breast size and reported upper body pain. However, women wearing a bra two or more sizes too small had a time times increased relative risk of upper body pain (RR 1.9, $p < 0.005$). This risk was independent of Body Mass Index.

A TALE OF TWO COUNTIES: RURAL COMMUNITY HEALTH NEEDS ASSESSMENT

Report of the Dodge-Jefferson Healthier Community Partnership (DJHCP) Lindegard R, Grajewski M (Watertown)

Community health has become a popular theme in hospitals and health departments across the country. In Wisconsin rural communities, an impact on their true "community" and "health" has been difficult to obtain. Dodge and Jefferson counties have sought a unique study and action plan for their two counties together. The study looked at collaborative steering committee formation, appropriate consultant use, funding issues, secondary data, primary survey data, strategic planning processes, and action team processes. It highlights issues of group process, combining local survey data with traditional state and national data sources, reproducibility and community "buy-in".

Methodology (in temporal order):

- Small group process for interested professionals, i.e., "grassroots activation"
- Survey of pertinent state and federal data sources, with analysis of secondary data
- Generation of community survey and analysis of results
- Community leaders' participation in an intense two-day strategic planning process with facilitation
- Action team initiation for mobilizing the community for

the top six topics of intervention

- Ongoing community education about the process and the results
- Ongoing review of funding sources
- Ongoing appropriate consulting Plan for long-term functioning and purpose of the partnership

Results:

- Successful true vertical collaboration
- Database formation of key indicators of community health for these counties
- Network initiation for improvement of six key indicators and other "spin-off" projects
- Planned ongoing "outcomes" approach to community health initiatives

Although it is a massive undertaking, rural community health analysis and subsequent initiatives can be facilitated by local health care professionals. This offers an opportunity to build on developing concepts of local population medicine with sensitivity to limits of resources and funds.

What to Expect If You Are Sued: A Roadmap of a Typical Malpractice Claim

by John Markson, JD

This is an outline of a typical medical malpractice claim from initiation through resolution. It can be divided in four parts: before litigation, trial preparation, trial, and post-trial.

Before Litigation

A claim asserting negligence against a health care provider must be the subject of mediation as described in Chapter 655 of the Wisconsin Statutes. Mediation may be requested in conjunction with a pending court action. It may also be requested before beginning a court action.

If you receive a patient's request for mediation, notify your professional liability insurance carrier. Your carrier will appoint a lawyer experienced in defending medical malpractice claims to represent you. He will meet with you before the mediation and review your chart on the patient.

The mediation will be held within 90 days of the patient's request. Mediation consists of a meeting among the three-person

mediation panel, the patient, and the physician, with the goal of resolving a claim of medical negligence. The panel consists of a lawyer who acts as the chair, a physician, and a member of the public. The patient may be represented by counsel, and your lawyer will participate on your behalf. Each side has the opportunity to submit written materials in advance to the panel. There will usually be discussions between each side and the panel. Panel members frequently ask questions of the parties.

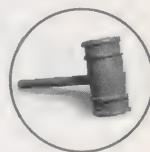
The mediators do not have the authority to resolve the case.

*The first thing you
should do if you receive
a summons and
complaint is to notify
your professional
liability insurance
carrier.*

Their mission is to get the case settled on a basis acceptable to both parties. Mediation in a significant case is rarely successful. It comes at a time before the parties have an opportunity to do the investigation that is necessary to evaluate the case. In most medical negligence cases, the parties are represented by experienced

lawyers. The lawyers will usually reach their own conclusions about the value of the case without the opinion of a mediation panel. Because mediation usually does not work in significant cases, the parties will often agree to waive it.

Mediation can be effective in cases where a patient is not represented by a lawyer. Usually the reason a party is unrepresented is that his case has no merit, and he cannot find a lawyer to take it. In those instances, the perspectives of three independent persons, including another physician, can often be useful in dissuading a pro se claimant from pursuing the claim.



Trial Preparation

The next stage takes us from the filing of the lawsuit up to trial. An action is begun with the filing of a summons and complaint in court. A copy of those papers must be served upon each defendant within 90 days after filing.

Most medical malpractice cases are filed in state, not federal, court. The case may be filed in the county where the patient (the plaintiff) resides, where the claim arose, or where the health care provider (the defendant) resides.

If the case has been in mediation before suit is filed and you have a lawyer, your lawyer may accept service of the summons and complaint for you. Otherwise, you will be served by a process server. The first thing you should do if you receive a summons and com-

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plaint is to notify your professional liability insurance carrier. Your carrier will hire a lawyer to represent you. The lawyer will meet with you and will file an answer to the complaint. The time to answer was very recently increased from 20 to 45 days after service. The courts have been strict in enforcing the time limit to answer.

It is difficult to generalize how long it takes a case to reach trial. It depends on the docket of the judge to whom the case has been assigned and how quickly the plaintiff's lawyer moves the case along. Most cases are tried one to two years after they are begun.

After the answer has been filed, each party begins discovery of the other side's case. Each side can send written questions, called interrogatories, to the other. These should be answered within 30

days, though most lawyers will grant reasonable extensions of time. If the plaintiff serves interrogatories, your lawyer will send them to you and ask your

assistance in answering them.

Your responses will be typed in your lawyer's office and returned to you for your review and signature under oath. Each party can also ask the other to produce relevant documents upon 30 days notice.

Several months after the case has begun, the lawyers will take the depositions of the parties. A deposition is an oral statement given under oath before a court reporter who will transcribe the questions and answers. This testimony can later be used at trial.

Your lawyer will take a deposition of the plaintiff. Generally there will be no reason for you to attend that deposition. By thoroughly questioning the plaintiff, your lawyer will establish exactly what the plaintiff claims you said and did, and how he has been harmed as a result. It will provide

much of the information needed to evaluate the claim.

When the time comes to give your deposition to the plaintiff's lawyer, you will need to be as prepared as you will be for your actual testimony in court. You must be thoroughly conversant with the underlying facts and medical issues. Your lawyer will spend several hours preparing you for the deposition. Though your lawyer will be with you at the deposition, you will not be able to confer together before answering the questions. You will be permitted to look at your records during the deposition.

As a practical matter, you will be bound at trial to what you say at your deposition. If you change your testimony at trial, the plaintiff's lawyer will read from your deposition to show the jury that your sworn testimony has changed and therefore, you should not be regarded as credible.

Generally, the only direct involvement you may have during the pretrial process will be in helping to answer interrogatories and giving your deposition. Your lawyer will perform other investigation. He will periodically report to you and your insurance carrier about the progress of pretrial preparation. You should not hesitate to call your lawyer with any comments you might have. These can be extremely useful: you understand the medical issues in the case better than your lawyer ever will, and he is counting on you to help him identify and analyze these issues.

One of your lawyer's jobs early in the pretrial process will be to consult with an expert witness from your speciality. In order to successfully defend a medical malpractice case, two things have to happen. First, the jury has to believe that you are a competent and caring physician who acted reasonably. Second, the jury needs to hear from a credible authority within your field that you exercised sound med-

ical judgment. This is the job of your expert witness.

Your lawyer will choose an expert after consulting with you about who within your speciality would make a good expert witness. The jurors must perceive your expert as someone who can be trusted to tell them the truth. The jurors don't know medicine. They will depend upon the experts to tell them whether what you did was within the standard of care or not. If you and your expert present as the sort of physicians the jurors would be comfortable seeing in a professional capacity, you will have gone a long way toward winning your case.

Good expert witnesses do not have to have extensive academic credentials. A plain spoken, seasoned practitioner will make a better expert witness than someone with an impressive list of publications who cannot communicate persuasively with 12 non-medically trained people. In suggesting names of potential experts to your lawyer, you should ask yourself who you would consult if you or someone in your family needed a physician in your speciality.

Ultimately, your lawyer will make the choice of an expert. He may rely on people he has used before. He may consult other lawyers who have defended similar cases. Chances are he will seek your suggestions and you should give this careful thought from the start.

Several months after the case is filed, the court will hold a scheduling conference to set the trial date (or at least a deadline for completing pre-trial discovery) and establish other deadlines for the orderly preparation of the case. Two of the most important deadlines are the time for the plaintiff to identify his expert witnesses and the time for you to identify yours. Typically the court will require the plaintiff to disclose his experts first. Your lawyer will then take deposi-



tions from them. Generally the court will require your lawyer to disclose your experts 90 or perhaps 120 days after the plaintiff's experts are disclosed.

Your lawyer will report to you on his deposition of the plaintiff's experts. He may send you copies of the depositions. You should be sure to review these carefully so that you can provide any comments. Your thoughts will be useful as your lawyer works to prepare your expert for his deposition.

As trial approaches, there are other deadlines that the lawyers need to observe if they wish to offer treatises and medical records into evidence at trial. Shortly before trial, the court will require the lawyers to submit proposed verdict questions to be submitted to the jury after the evidence is received. The court also will invite the parties to submit instructions on the legal principles the lawyers believe the jury should understand before deliberating on their verdict. The law on medical negligence and informed consent has been distilled into standard instructions and, in most cases, the court will read those standard instructions, making any changes required by the circumstances of the case.

Trial

The length of the trial of a medical malpractice case varies, of course, from case to case. A simple case might go three or four days. A more complicated case, particularly one involving several doctors and several different claims of malpractice, might stretch into several weeks. You will need to be present throughout the entire trial. The projected length of the trial will be determined at the scheduling conference and, when your lawyer tells you the time reserved for trial, you should mark that out on your calendar. You will also need to reserve time with your lawyer to meet to prepare your trial

testimony. This will usually require at least two half days in the weeks leading up to trial.

In the days before trial, the court may make certain evidentiary rulings. The court's rulings on these "motions in limine" (preliminary motions) may determine whether certain evidence will be admitted for the jury to consider or be barred from the case.

The first order of business at trial will be choosing the jury. This usually will take a couple hours. The court will ask some preliminary questions of the jury panel. Each lawyer will be given a chance to ask questions of the panel. The purpose of these questions is to determine whether the prospective jurors are capable of deciding the case in an unbiased way. The court may excuse any prospective juror "for cause." Then each side has an opportunity to strike a certain number, typically three, panel members for any reason or for no reason at all. The remaining persons comprise the jury.

Once the jury is chosen, the court will ask the parties to make opening statements. This is an opportunity for each of the lawyers to outline the proof that will be presented. An effective opening statement will give the jury a story to hold onto as it receives the evidence. It is especially important for the defense, because for the first part of the trial, the jurors will hear only the plaintiff's proof. The defense lawyer needs to tell the jury the other side of the story so that as the jurors are listening to the plaintiff's proof, they will be aware of how it fits into the defendants' theory of the case.

Following the opening statements, the plaintiff will put in his proof by calling witnesses and offering relevant documents into evidence. After the plaintiff's lawyer finishes the direct examination of his witnesses, the defense lawyer will have an opportunity to cross-examine. The plaintiff's

lawyer may then conduct a short redirect examination limited to the issues that have been raised on cross-examination. When the plaintiff finishes putting in his evidence, he will rest. It will then be time for the defense to put on its case, which proceeds like the plaintiff's. At the conclusion of the defense case, the plaintiff will have an opportunity to present rebuttal testimony, which is limited to new issues raised in the defense case.

When all the evidence is in, the lawyers and the judge will meet to finalize the form of the verdict that will be submitted to the jury and the language of the legal instructions the court will give to the jury. Some judges will read the instructions before the closing arguments; others will instruct the jury after the arguments.

The sequence of the arguments follows the sequence of presentation of proof: the plaintiff will give the first argument, the defense will follow, and the plaintiff will have an opportunity for rebuttal. The case will then be submitted to the jury for its deliberation.

The typical verdict form in a medical malpractice case will ask: whether the physician was negligent; if so, whether that negligence caused injury to the plaintiff; and if so, what damages have been sustained by the plaintiff as a result of the injury caused by the physician's negligence. Sometimes there may be questions inquiring about the plaintiff's own negligence with respect to his health care, for example, in failing to follow the doctor's orders.

In order to recover a judgment, the plaintiff must convince ten of the twelve jurors that the physician has been causally negligent and that the plaintiff has sustained an injury and damages as a result. If the jury should find that the plaintiff was also negligent, then the amount of money the plaintiff will actually receive in damages will be reduced by



the percentage attributable to his own fault. If the plaintiff is determined to be more than 50 percent at fault, he will be barred from any recovery altogether.

Post-trial

The final phase of the litigation process is post-verdict proceedings. After the court receives the verdict, the parties will be given 20 days to file motions after verdict. The losing party can ask for the court to enter judgment in its favor notwithstanding the jury's verdict, or can ask for a new trial. These motions are not often granted. Typically, the judge will enter judgment affirming the jury's verdict.

The court's judgment will usually award statutory costs to the winning party. These costs by no means represent the party's entire expenses associated with the litigation. Rather, they consist of selected items of out-of-pocket expenses,

including the cost of deposition transcripts, witness fees, and the like. Sometimes the winning party will agree to waive its entitlement to costs in return for the other side's not filing motions after verdict or not taking an appeal.

If the losing party believes that the trial judge has made an error, he is entitled to take an appeal from the judgment. An appeal is required to be filed within 90 days of the judgment, or within 45 days if the winning party gives written notice of the entry of judgment. The appeal is taken to the Court of Appeals. The appeal will be assigned to a panel of three judges who will decide the issues presented on the basis of legal briefs that are filed by the parties and a review of the transcript of the proceedings in the trial court. In unusual cases, the Court of Appeals may order oral argument before making its decision. It can take a year, more or less, from the time of judgment until the Court of

Appeals issues its decision.

The Court of Appeals can affirm the judgment of the trial court, reverse it, or affirm it in part and reverse it in part. If the court reverses the trial court's judgment, it may order a new trial.

The losing party in the Court of Appeals has the right to petition the state's highest court, the Supreme Court, for review of the decision of the Court of Appeals. The Supreme Court has discretion as to which cases it will review and typically, it will accept only those that present a serious, unresolved question of law. Unlike the Court of Appeals, the Supreme Court asks the parties to make oral arguments on the cases it will decide.

This concludes the litigation process. It is time consuming, expensive, and emotionally difficult. Don't despair: the outcome is just most of the time. And don't forget: the defense wins most of the time.



exhibit A:

Adhesive bandage, which plaintiff alleges defendant pulled rapidly from skin, violently tearing three hairs from plaintiff's arm, which resulted in severe shock, trauma, disfigurement, chronic debilitating pain and permanent psychological damage.



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An Invitation to Join Us

by Jay A. Gold, MD, JD, MPH, Senior Vice President and
Principal Clinical Coordinator, MetaStar

For the remainder of 1998, MetaStar, in its work with the Health Care Financing Administration to improve quality of care for Medicare beneficiaries, will be focusing on four project areas:

- Acute myocardial infarction
- Diabetes: foot, eye, and blood exams
- Congestive heart failure
- Vancomycin utilization

While we will continue to work to improve care in a number of other areas, these four will be emphasized.

In the first two of these areas, we are looking for additional collaborators. This column describes those two projects.

Acute Myocardial Infarction

WMJ readers will recall that Wisconsin was one of four pilot states in the original Cooperative Cardiovascular Project (CCP). We looked at 1992-93 data in all Wisconsin hospitals, and worked with hospitals in 1993-94 to improve care for patients with acute MI. A recent paper in JAMA¹, which this writer co-authored, reported that while acute MI care and mortality improved across the country, both care (on certain indicators) and mortality had a significantly greater improvement in the pilot states than in the rest of the country. The CCP now has been expanded to the rest of the country, and Wisconsin hospitals (37 hospitals at this writing are collaborating on

Phase 2 of the project). The indicators for the project are based upon the guidelines of the American College of Cardiology and the American Heart Association²:

1. Proportion of patients who did not have a contraindication to reperfusion who received either thrombolytics or PTCA;
2. Median time to thrombolytics;
3. Median time to PTCA; and
4. Proportion of patients with no contraindications to aspirin that received aspirin during hospitalization.
5. Median time to first dose of aspirin after arrival.
6. Proportion of patients with no contraindications to aspirin that were discharged on aspirin.
7. Proportion of patients with no contraindications to ACE inhibitors who were discharged on an ACE inhibitor.
8. Proportion of patients with no contraindications to beta blockers who were discharged on a beta blocker.
9. Proportion of patients who were not discharged on a calcium channel blocker unless certain indications exist.
10. Proportion of cigarette smokers with documented advice to stop smoking.

Baseline data show that in general, hospitals' performance on a number of these indicators (4, 6, 9) leaves little room for improvement. However, considerable room for improvement exists in most hospitals for other indicators, especially 1, 2, 3, 5, and 7.

MetaStar is working with collaborating hospitals to develop system improvements (standing orders, critical pathways) and other changes with the goal of improving rates on these indicators. New collaborators will receive baseline and follow-up data, as well as assistance from MetaStar in instituting improvements.

Diabetes: Eye, Foot, and Blood Exams

Unlike in our other key projects, our collaborators in this project are clinics rather than hospitals. The project is based upon a pilot that MetaStar conducted in 1995-97 with a multi-clinic medical group. The quality indicators are based on recommendations of various bodies, including the American Diabetes Association and the Wisconsin Diabetes Advisory Group:

1. Proportion of study patients with documentation of a dilated eye exam in a one-year period.
2. Proportion of study patients with documentation of at least one foot exam in a one-year period.
3. Proportion of study patients with documentation of at least two hemoglobin A1C test results in a one-year period.

The pilot study found significant improvements from baseline to follow-up for indicators 2 and 3. Baseline data from eleven Wisconsin



sin clinics indicate considerable opportunity for improvement on all three indicators.

Collaborating clinics receive baseline and follow-up data. In addition, they work with MetaStar in developing and implementing systems changes (e.g., reminder systems) to increase performance on the indicators. We also will be working on patient-based interventions in order to make it more likely that diabetic patients will take the initiative to obtain needed examinations.

Conclusion

The indicators being addressed in our projects all arise from evidence-based recommendations that are associated with improved outcomes. MetaStar's projects are designed to offer maximum value to physicians, hospitals and clinics, and patients in their efforts to obtain the best possible care. If your hospital or clinic is not collaborating in one of these projects, and would like to, please do not hesitate to contact us.



References

- ¹ Marciniak TA, Ellerbeck EF, Radford MJ, Kresowik TF, Gold JA et al. Improving the quality of care for Medicare patients with acute myocardial infarction: results from the cooperative cardiovascular project. *JAMA*. 1998;279:1351-1357.
- ² ACC/AHA Guidelines for the Management of Patients with Acute Myocardial Infarction: Executive Summary. *Circulation*. 1996;94:2341-2350.

Medical Outcomes Research Project

Acute Myocardial Infarction Study Identifies Best Practices

The Medical Outcomes Research Project (MORP), under the auspices of the new Center for Medical Practice Research and Education, recently began a new data collection and quality improvement study for Acute Myocardial Infarction (AMI). Best practices identified through this data collection and benchmarking study will be publicly disseminated to help improve care through education.

The SMS AMI Study Group is collaborating with MetaStar as part of Phase Two of the Cooperative Cardiovascular Project (CCP). The purpose of the MORP study is to go beyond the hospital indicator data and move to the outpatient follow-up to determine patient quality of life outcomes. The Study Group, chaired by Robert Green, MD, Gundersen-Lutheran cardiologist, developed study parameters that identified five phases of AMI care: Pre-admission, Emergency Department, Hospital, Discharge and Follow-up. The Study Group identified eight priority measures to begin the initial measurement. In the emergency department, these include time to EKG, time to thrombolytic therapy, time to cath lab, and time to aspirin. In the hospital, risk factor modification counseling was cited as integral and upon discharge, aspirin, beta blockers and lipid control measures were identified as es-

sential components. Patients eligible for the study include individuals of any age admitted with either a diagnosis of AMI or ischemia and discharged with an AMI diagnosis. The Study Group plans a one-year follow-up of patients.

In following with MORPs credo, "You can't manage what you don't measure," the first phase of the study will be to measure what is currently being done and then work to improve the processes and outcomes of patient care. As with all of MORPs studies, the overarching goal is the improvement of care for the citizens of Wisconsin through cooperation and education, so only aggregate data will be publicly released; never any individual physician or facility data without the express permission of that physician or facility.

Anyone interested in participating in the study or needing more information, please feel free to contact **Mark Meaney: HYPER-LINK mail to:** MARKM@smswi.org or by telephone at (800) 362-9080, ext. 310.



Your Practice

PIC Wisconsin Awarded Patients Compensation Fund Risk Management Contract

by Kathy Swanson, MS, RN, Director of Risk Management,
PIC Wisconsin

As a result of a contract recently signed by the Office of the Commissioner of Insurance (OCI), and Physicians Insurance Company of Wisconsin (PIC Wisconsin), PIC Wisconsin will continue to play a leadership role in risk management education for Wisconsin health care clinicians. The contract, which went into effect on April 1, 1998, is a one-year contract, renewable for an additional two years.

The contract provides risk management assistance for practitioners insured by the Wisconsin Health Care Liability Insurance Plan, and risk management education for all participants in the Patients Compensation Fund. These services were originally begun in 1990, and provided by MMI Companies of Deerfield, Illinois. PIC Wisconsin has been the contractor of record since 1993.

"We're pleased to have this opportunity to continue to provide risk management services to Wisconsin health care providers," said Joan Deshima, PIC Wisconsin's vice president of client services. "Risk management is a cornerstone of PIC's success. We're a physician-owned company, and are committed to improving the quality of care provided by Wisconsin physicians. Our roots in the medical commu-

nity give us a unique understanding of the issues facing today's health care clinicians."

The latest contract specifies several innovative approaches for providing risk management services. For example:

- An 800 number will be provided for clinicians to call regarding risk management issues;
- Establishment of a resource guide, which will include risk management programs, educational offerings and resources within the state;
- Video and teleconferencing, Web sites, and the 800 line will all be used to create an information database.

The contract will allow PIC Wisconsin to explore new ways to coordinate and enhance the flow of information to the medical community through the use of new technology.

By using these tools, we hope to demonstrate that risk management education is a means of continually improving the quality of care for all health care consumers in our state.

The PCF pays medical professional liability claims awarded in excess of the amount

available from medical professional liability insurance policies. Of the Fund's nearly 12,000 participants, 85% are physicians. State law requires physicians, nurse anesthetists, hospitals and clinics to participate in the Fund. WHCLIP provides insurance coverage to health care providers who have not obtained insurance from other primary carriers.

PIC Wisconsin provides insurance products and consulting services to physicians, dentists, hospitals and allied health care providers and networks. The company, headquartered in Madison, is licensed in Wisconsin, Illinois, Minnesota, Nebraska, Nevada, North Dakota, and South Dakota.





Your Financial Fitness

How to Pick a Medigap Policy

by Michael J. Dolan, CLU, ChFC,
President, SMS Insurance Services, Inc.

Medicare, Uncle Sam's basic health insurance plan for men and women over age 65, comes in two parts. Medicare Part A, covering hospitalization, is free as a part of Social Security coverage. Medicare Part B, covering medical expenses, can be bought for an additional monthly premium. Both have deductible and coinsurance provisions, along with restrictions on "reasonable" fees. And both have exclusions.

Since many expensive items are not covered, ranging from out-of-hospital prescription drugs to eye examinations to private duty nursing, Medicare currently

covers only 35% to 50% of participants' health care costs. As a result, many people buy Medicare supplement or "Medigap" policies to fill in the gaps.

Medigap policies must meet federal standards. A basic policy, called Plan A, covers the co-payment under Medicare Part A, the 20% co-payment of allowable physician charges under Part B, and three pints of blood. Up to nine other policy packages may be offered, each with the same basic protection and a different combination of additional

benefits. The plans are essentially the same from every insurer, although premiums may vary significantly. Your insurance agent can help you decide which plan is right for you.

Uncle Sam included some basic consumer protection in the laws that standardized Medigap policies:

- You can't be sold duplicate coverage. In fact, if you apply for a new policy and already have one in place, you must agree to drop the existing policy when the new one is issued.
- You cannot be denied a policy based on pre-existing conditions, so long as you apply within the first six months after you turn 65 and become eligible for Medicare. This is a crucial deadline; don't miss it.
- You can change policies without satisfying a new waiting period for pre-existing conditions so long as you've already satisfied a waiting period for the same condition under the prior policy. You may have to wait up to six months, however, before becoming eligible for broader benefits.
- New Medigap policies must be guaranteed renewable. They can't be canceled unless you

fail to pay a premium or significantly falsified information on your application.

In evaluating Medigap policies, look for one offering "crossover billing," so that Medicare automatically sends bills to the insurer. This cuts down on your paper-work and ensures reimbursement.

Michael J. Dolan is president and chief operating officer of SMS Insurance Services and a member of the National Association of Life Underwriters. He can be reached at SMS, ext. 550, or via e-mail at: MIKED@siswi.org.

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